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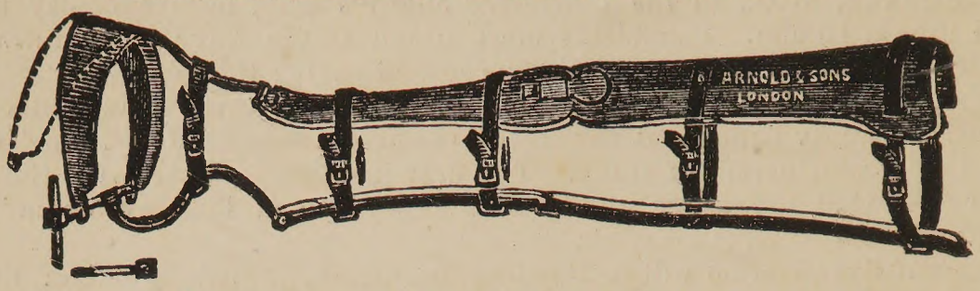

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Communications and Cases.

A FEW REMARKS ON THE RECENT OUTBREAK OF EQUINE INFLUENZA.

By W. F. Barrett, M.R.C.V.S.

I think it may safely be said, now that the recent outbreak of equine influenza has for the most part passed away, at any rate for a time, it will, perhaps, be wise of us to survey the effects of its onslaught, not with a view in any way of lessening the harm which we have already suffered, but more especially to excite discussions or writings upon the affection, in order that something may be learned or discovered which will enable the veterinary surgeon to grapple more successfully with any future outbreak, or, of more importance still, to prevent or check the spread of the malady.

It is surprising to me how indifferently veterinary surgeons regard the spread of influenza, and, stranger still, that although valuable horses die around us, we for the most part put it down as a mere matter of course, as one of those things which nature has ordained that we shall endure, and which assumingly, therefore, is beyond human aid.

The last outbreak has, I think, been more severe and widespread than that of 1889, and probably a higher percentage of deaths has occurred, which *primâ facie* shows that we may not be protected from a third visitation in the ensuing autumn, and that horse owners may again have their stables thinned by the scourge.

What, then, is the nature of the disease known as influenza (pink-eye) of the horse? Is it microbic in origin, or gaseous, or does it depend upon mere atmospheric conditions with which we are not essentially familiar?

To my mind these questions at present cannot definitely be determined. Let us for the moment assume that it is microbic, then it is most difficult to explain how so many horses can be attacked simultaneously, and those, perhaps, in districts far removed from each other. It may be said that the germ is always present, and that favorable climatic conditions vitilise it, as it were, and cause it to multiply to an alarming extent; but this theory may be seriously refuted, inasmuch as in many districts wherein atmospheric conditions appear to be precisely favorable the disease does not appear, although in a surrounding territory hundreds of horses may be attacked; also another peculiarity of the disease is that horses are often attacked twice or more, the second illness not being less severe than the first, whereas in microbic diseases generally one attack confers immunity from subsequent seizures, or should the animal be a second time affected the febrile symptoms are slight and soon subside. This circumstance tends to negative its specific character. Further, contagious maladies can nearly always be traced from a common centre. Pleuro-pneumonia extends from a fair where diseased animals are exposed for sale; foot-and-mouth disease from a clearly-defined infected area, which one can limit by careful legislative and sanitary precautions; with influenza, however, all efforts to check its spread appear useless. Isolation, a most important factor in stamping out other infectious fevers, is in this case useless; disinfection appears of no use in checking the disease, for in some of my stables horses were attacked when the atmosphere must have been saturated with carbolic acid; indeed, it would seem that the animals would die of carbolic poisoning before being protected from the malady.

Secondly, as to its gaseous origin. I am of opinion the disease is not gaseous in origin, and I base this conclusion upon the symptoms which are observed in influenza. The horse at first is especially feverish; sometimes he does not appear very ill to the non-professional eye, but the thermometer shows temp. 104° F. or 105° F. From observations I think that the temperature rises somewhat suddenly; it is higher during the earlier stages of the attack, and later gradually falls. Now, I submit this would not be the case if the disease were of gaseous origin. I should expect to find the patient becoming gradually worse, showing increasing irrita-

tion of respiratory passages without much fever, which would be secondary to catarrhal changes going on in the mucous membrane of the throat and bronchial tubes. The symptoms would likely increase in severity day by day; catarrhal products would be coughed up more and more abundantly, until ultimately death would ensue from bronchitis and exhaustion.

In very many cases that have come under my care the animals have not suffered much from catarrh, but simply from a peculiarly exhausting fever, which appears early to prostrate the animal. If the fever be thrown off in a few days pulmonary changes may not ensue, but otherwise there is soon evidence of thoracic inflammation; that is to say the inflammation may be secondary to the fever, as though the poison, having entered the system and poisoned the blood, ceases its work, as if cognisant that the changed fluid will soon, by reason of the complication of the machine, effect the animal's destruction. There is one symptom alone which might point to a gaseous irritant, viz. that of conjunctivitis, which is so constantly present. But I see no reason at all why this should not also be due to microbic action; indeed, I would say that such is more likely to be the case.

Before passing from this gaseous theory I ought to remark, because I know there are many thoughtful and able veterinary surgeons who still believe in this origin, that undoubtedly the air in our large cities contains more gaseous irritating material than that of the country, and those gentlemen would say "Yes," and that accounts for city horses being especially liable to attack; but I would say, in reply to this, that the air of towns also is more charged with bacterial organisms than country air, and that therefore the presence of the disease in towns may on this microbic theory be equally accounted for.

Thirdly, then, as to the view that the disease depends upon certain ill-defined atmospheric conditions with which we are not familiar. In regard to this theory, we must not lose sight of the fact that influenza is most prevalent during the autumn of the year, and it is strange how soon horses brought into London during this season are attacked with fever, and how ill they become. They do not, however, nearly always suffer from this special fever; indeed, in very many cases (in the majority I might say) they show none of those "pink-eye" symptoms.

In considering the condition of the atmosphere during the months of November and December in London, one must

be forcibly impressed with the fact that the air is generally surcharged with moisture, which favours germ development, besides which, too, by reason of the stillness of the atmosphere, irritant gases exist to an unusual extent. The copious moisture appears to imprison the gaseous and carbonaceous material, and hold it in suspension, and this, entering the respiratory passages, does, in the opinion of many, give rise to influenza in the horse. Now, I am prepared to admit that this climatic condition often affects the horse seriously, and still hold that it is not of itself capable of inducing that special affection which we denominate influenza.

Undoubtedly many horses have died from respiratory diseases during the past four months, which I fully believe have been due to those atmospheric conditions above mentioned, and that is precisely why I think influenza depends upon some other condition, for the two classes of cases present altogether different symptoms.

In "pink-eye" the animal appears peculiarly prostrated; the head hangs down as if too heavy for the body; the ears are cold and drooping; the fever reaches 105° F. or more; the limbs are swollen; there is marked disinclination to move; the eyelids are swollen, and tears trickle down the cheek. If you cause the animal to move in the stall he rolls as if about to sway over; on recovering himself he appears nervous and uncertain as to his movements, and looks at you as if to say "Let me rest;" there is constant shifting from one hind leg to the other, although the animal remains persistently in one spot. On a close examination I have often been surprised to find that there are no special catarrhal symptoms; the throat is not often sore, nor is there a cough. On placing the ear to the sides you are surprised to learn that the lungs give out their usual sounds. In a few days, if the case progress favorably, the fever subsides, but recovery is slow and tedious. The sheath and eyes remain swollen for a fortnight or so, and in many cases longer.

What are the symptoms observed in those respiratory affections which do undoubtedly depend upon the autumnal state of the atmosphere in London and other large cities? The horse is a little feverish, 103° F. or so; there is a watery discharge from the nose, which soon becomes thick and creamy; the appetite is somewhat impaired; a moist cough is noticeable; the eyes are not swollen, but the throat is generally a little sore. The extremities may be a little cold, but they are not enlarged; the breathing is somewhat frequent, the pulse about 50—55, fairly strong. If the case

terminates satisfactory in about ten days the horse appears well again; or should unfavorable symptoms develop, then of course pneumonia or bronchitis supervene. The peculiarity about these last-mentioned cases is that the symptoms, as a whole, point to the inhalation of some irritant, which, acting upon the respiratory mucous membrane, induces catarrhal inflammation.

On a closer examination of these theories of origin one is irresistibly drawn to the conclusion that influenza must depend upon the entrance into and multiplication within the system of germs which possess marvellous powers of reproduction and which probably always are lurking in the stable crevices. Upon the advent of favorable climatic conditions these spring forth into renewed vigour, are carried by currents in all directions, multiplying alarmingly, and prostrating those animals which are unable to resist their invasion.

The question is worthy of thought whether, accepting the germ theory, the horse is attacked by a special equine organism, or if the same microbe has the power of affecting other animals, clearly I think the latter is not the case, for it is a remarkable fact that the disease, influenza, usually attacks man after the epizootic has in the horse passed over; and again this year, so far as I know, influenza in man has not been especially prevalent.

I am convinced the disease is not communicable from the horse to man, nor *vice versâ*, for I am unable to call to mind any case of such transmissibility. I myself have inhaled the breath from several suffering horses without ill effects, although, afterwards, when the disease was so prevalent in man, I became a victim. Further, then, is this disease contagious in respect of the horse? I should be pleased to learn the views of others as regards this.

If one accept the bacterial origin it is difficult to resist the conclusion that it is contagious; but I cannot remember any case which I can definitely assert thereto, that it was due to contagion, and I have on a few occasions transferred the nasal discharge from a sick to a healthy horse without obtaining influenza. I am not at all satisfied that it is contagious, and with my present knowledge I am inclined to think it is not.

I am obliged to come to the conclusion that the disease is infectious, and this must be the chief means by which the malady is carried.

It is strange how many horses fall in one stable shortly after the appearance of one case, and most of us can, I

imagine, recall instances where a diseased horse, having entered the stables, healthy animals have been attacked. I cannot myself reasonably attribute this to any cause other than that of infection.

It may be interesting to professional men to discuss the various theories in respect of the origin of influenza, but to the horse owner information having relation to its prevention and cure would be the more pleasing. Unfortunately we appear to be able to accomplish so little with reference to prevention, for in my hands cleanliness and disinfection have had little effect in arresting its spread, although undoubtedly good sanitary and hygienic conditions assist recovery. Bearing this practical face in mind it is most necessary to see that the stables are kept clean, that some disinfectant is used at least once in every twenty-four hours, that the animals have a plentiful supply of air, although not exposed to draughts, and that the body and extremities be kept warm with suitable clothing. As regards the disinfectant, probably carbolic acid is the most suitable. I think the carbolic powder is to be preferred to the liquid, inasmuch as the latter, if used sufficiently, keeps the stable damp and cold, whereas the former preparation, while answering all disinfecting and purifying purposes, tends to keep the stable dry. Many of the carbolic powders are practically useless, containing little of the acid; a good powder should therefore be obtained. That the stables should be kept cool and fresh with pure air is undoubtedly most desirable. Most of the fatal cases sink from septic pneumonia, purpura, or exhaustion; and it is a most noteworthy fact that these conditions arise in those animals which are compelled to breathe noxious air. I have one stable in a yard that is surrounded by high model dwelling houses, the smoke from which descends and vitiates the air around. In this stable I have lost several horses from septic pneumonia; those, indeed, that have survived are so broken down that they will, I fear, be of little use.

The Medicinal Treatment of Influenza.—It is rather interesting to hear the views of different veterinary surgeons on the treatment they adopt. One practitioner cures almost every case with carbonate of ammonia, another advises that the only specifics are sulphate of magnesia or potassium nitrate, whilst another gentleman suggests that in his opinion antiseptics alone do good. Unfortunately in influenza there is no hard-and-fast rule on which you can rest. You must treat each case on its own merits, combating un-

favorable symptoms as they show themselves, in all cases, too, sustaining the flagging powers.

Counter-irritants. — Are counter-irritants beneficial in influenza? In my opinion, broadly, they are; sometimes, however, I believe they do harm.

If your patient is in good condition at the time of the seizure, is not an old horse, has not been worked after being ill, and generally is not prostrated, then I think a smart application of mustard to the sides does much good. In order to avoid exciting the animal too much I often instruct the horsekeeper to stay with the horse till the pain is over, to keep hold of the horse, and in every possible way draw his attention from his smarting sides. I believe these counter-irritants can then do no harm, as the horse does not appear fatigued, and in a short time becomes more composed and less feverish. In many of my cases mustard has appeared to lessen the fever, irrespective of the condition of the lungs; and in many instances recovery has been hastened by this rubefacient.

In some cases I have witnessed harm resulting from mustard, especially if you have a prostrated animal to treat; in this case the irritation to the sides appears to exhaust your patient, which exhaustion you especially wish to avoid.

In those cases of typhoid pneumonia with offensive breath, cold ears and extremities, mustard does harm; the horse does not seem refreshed from such application, but sinks into a lower condition, the pulse becomes weaker, and in spite of all efforts you are unable to restore the circulation. I should like to hear the views of others as to whether a second or third dose of mustard is ever desirable. I myself have often ordered a third application, and I see no reason to blame myself for so doing. To me it is absurd to argue either that counter-irritants always do harm, or that they always do good. There are cases in which they evidently benefit your patient greatly; there are others in which nature is best left alone.

As regards medical agents, I have found much benefit result from the administration thrice daily of a ball containing Camphor ʒss, Ammon. Carb. ʒj, Pot. Chlor. ʒij, Antim. Tart. ʒss. If this ball fails to reduce the fever, antifebrin ʒij should be tried every eight hours. If your patient is weak then alcoholic stimulants given liberally do good. Some cases yield remarkably to salicylate of soda, given freely; especially is this the case where there is a tendency to gangrenous pneumonia. In those cases in which diar-

rhœa is present cblorodyne answers well. In my hands sulphate of magnesia, so often used, has not appeared to benefit much, and in some cases I have fancied it has reduced the strength of the animal. When the disease first appeared last autumn several horses died of purpura, and it occurred to me that perhaps Pot. Chlor. given liberally could do no harm, and might possibly prevent this; and experience shows this to be the case. Since giving this drug I have lost but one or two from this blood disease. One must not lose sight of quinine in the treatment of this disease, for in some cases the patient is much benefitted by it.

It would be more satisfactory for us if we could rely upon certain drugs for the cure of influenza, and we are sometimes disappointed at the loss of a patient which we may have carefully prescribed for; but the careful thoughtful veterinary surgeon can in very many cases tide his patient over the crisis, and reward those clients who have placed valuable horses under his care.

We sometimes, I think, in the rush of cases, treat all patients upon the same lines, not observing those little differences which if neglected may lead to fatal results, and sometimes we grow weary of struggling against hope; but it must be remembered that many cases which appear on the point of sinking pull through by judicious treatment. It is not so much a question of any drug as of many drugs judiciously given, and carefully blended and regulated.

TUBERCULIN OF KOCH AND THE EARLY DIAGNOSIS OF BOVINE TUBERCULOSIS.*

By E. F. de Jong, New Veterinary College, Edinburgh.

Experiments testing the value of Koch's lymph (tuberculin) in the early diagnosis of bovine tuberculosis have already been carried on in Russia and Prussia, and are now being carried on in France and also at the veterinary colleges at home.

In Russia the experiments were conducted by Mr. Gutman, assistant to the Veterinary Institute of Dorpat. A first application of the lymph was made on the 25th December last upon three cows, weighing 374, 376, and 262

* Extracts from the *Recueil de Médicine Vétérinaire*, March 15th, 1891.

kilogrammes respectively, and in which the thoracic lesions, the cough, the presence of bacilli in the nasal discharge or in the milk, established the indisputable existence of tuberculosis. The quantity of lymph injected into the shoulder was in the first case one centigramme, in the second two centigrammes, and in the third three centigrammes.

The rectal temperatures of these cows at noon the day previous to that of inoculation were 28·1° C., 38·5° C., and 39·° C., the last being the most seriously affected. About eleven hours after the inoculation there was a distinct elevation of temperature in each case, the duration and intensity of this reaction being proportional to the quantity of lymph administered. In the first case the maximum temperature reached was 40° C., in the second 40·8° C., and in the third 41·3° C.

The fever lasted four hours, nine hours, and ten hours, during which respiration was accelerated, and the appetite diminished. The first cow received a second injection of a treble dose, which produced a new reaction in about eleven hours, but was less intense.

At the same time as these three cows were inoculated, two bulls, two years and two and a half years old, and weighing 360 and 390 kilogrammes respectively, also received injections of the lymph without presenting any perceptible elevation of temperature, and upon *post-mortem* examination neither presented the least sign of tuberculosis.

In Prussia experiments were carried on at Cologne from the 15th to the 27th of December last by Dr. Antonie Sticker, sanitary veterinarian. Four cows affected with pulmonary tuberculosis (the fourth especially), and also two others which were going to be slaughtered—one on account of lesions due to parturition, and the other on account of chronic indigestion—received each an injection of a centigramme of lymph under the skin on the left side of the neck, the skin having been previously cut in order to facilitate the entrance of the needle of the syringe. The two latter did not present any signs of reaction, and at their autopsy were found to be quite free from tuberculosis. As regards the former four cows, Dr. Sticker only made a detailed observation of the last one, as he was able two days after the inoculation to make a *post-mortem*.

The following table is a *résumé* of the observations on the first three cows:

Cow No. 1.	Cow No. 2.	Cow No. 3.
Eight years old, 375 kilos.	Six years old, 400 kilos.	Six years old, 375 kilos.
Coughing for two years; emphysema, mucous râles, bacilli in the nasal discharges.	Coughing for two months; mucous râles, nasal discharges mucous.	Coughing for one month; emphysema, mucous râles, discharges from both nostrils.
Injection—	Injection—	Injection—
Dec. 15th, 11 a.m.	Dec. 15th, mid-day.	Dec. 26th, 4 p.m.,
„ 4 p.m., 39° C.	„ 5 p.m., 39·9° C.	„ 8 p.m., 39·1° C.
„ 8 p.m., 39·5° C.	„ 9 p.m., 39·9° C.	„ 11 p.m., 40° C.
Dec. 16th, 10 a.m., 38·4° C.	Dec. 16th, 11 a.m., 38·7° C.	Dec. 27th, 7 a.m., 39·2° C.

The maximum temperatures are underlined.

Although incomplete these observations demonstrate a distinct reaction, except in cow No. 1, where it is shown to be doubtful. The observations on cow No. 4 were made more fully. It was seven to eight years old and weighed 350 kilos. The day before the injection the respirations were 52, the rectal temperature 39° C.; there was an abundant discharge from both nostrils containing numbers of bacilli, and the thoracic lesions were well advanced. The fæces were very fœtid, and the urine contained a sediment. At each milking she gave two litres of watery milk in which numerous bacilli were found; the mammary glands were congested. Dr. Sticker made the following diagnosis:—Bilateral pulmonary tuberculosis, with circumscribed pleurisy on the left side, bronchial catarrh, and tuberculosis of the mammary gland. He injected one centigramme of lymph (Koch's) on December 24th at 4 p.m., and on the evening of the 26th she was slaughtered.

The following is a table showing the pulse, respiration, and temperature during that period. The maximum of each being underlined:

Hour.	Respiration.	Pulse.	Temperature.
December 24th—			
4.15 p.m.	52	56	39° C.
5.45 p.m.	44	60	39° C.
10.45 p.m.	42	72	39·5° C,
11.45 p.m.	44	64	40·5° C.
Dec. 25th—			
12.45 a.m.	44	70	41° C.
7.45 a.m.	42	110	38·5° C.
12 p.m.	42	96	38·5° C.
7.30 p.m.	44	84	37·5° C.
Dec. 26th—			
8.30 a.m.	32	64	37° C.

In this animal the injection was certainly the cause of a disturbed respiration. Six hours and a half afterwards it became difficult and distressed, the pulse much accelerated, and upon percussion being applied to the side of the chest acute pain was evinced. The nasal discharge became more abundant and of a muco-purulent character. This paroxysm, due probably to congestion and œdema of the lungs, remained until the animal was slaughtered. There was nothing very striking about the mammary glands, although in the milk some red globules were present, which seemed to indicate an active tendency to inflammation. On the 25th December the urine became flaky, but it remained free from albumen.

At the autopsy Dr. Sticker's diagnosis was confirmed. He found advanced bilateral pulmonary tuberculosis, with miliary tubercles and caseous foci of various degrees, hyperplasia of the bronchial lymphatic glands, circumscribed pleurisy, bronchial catarrh, fatty infiltration of the liver and catarrh of the gall-bladder, calcareous infarcts of the straight tubes of the kidney and intestinal catarrh. Moreover, there was a slight serosity in the pericardium, but the valves and endocardium were free from disease. In the tubercular nodules microscopic examination revealed numerous giant-cells and other characteristics of inflammation. In addition to these alterations a considerable œdema of the lung parenchyma was present, which produced, when cutting through the caseous foci, an abundant escape of a serous fluid. The interlobular connective tissue was very much increased, thickened, and infiltrated, was yellowish in colour, and of a gelatinous consistency, which gave to sections of the lung an appearance similar to that of pleuropneumonia contagiosa. But the tubercular lesions were sufficiently well marked as to establish a correct diagnosis. This pulmonary œdema was evidently the result of the injection.

Dr. Sticker has not yet completed his experiments, his intention being to find out—

1st. If injections of Koch's lymph cause a reaction in tubercular cattle?

2nd. If the reactions have any specific value in order to arrive at a correct diagnosis?

3rd. If the reactions be different according to whether there be pulmonary tuberculosis or that of serous membranes?

4th. What are the anatomical alterations following the injections?

5th. Lastly, what is the *curative value* of the lymph in bovine tuberculosis?

I am sure we shall all be pleased to hear the results of his further experiments.

In France experiments commenced at the Veterinary School of Alfort on the 27th February, about which we shall no doubt hear in the course of a few weeks.

If Koch's lymph enables us to diagnose tuberculosis in the early stages, the time and money spent in these experiments will not be regretted.

ROYAL COMMISSION ON TUBERCULOSIS.

The following circular has been issued by the Local Government Board.

ROYAL COMMISSION ON TUBERCULOSIS.

7, Whitehall Place, London, S.W.

Medical practitioners are invited to record for the information of the Commission any observations that they may have made on the apparent communication of tubercle from animal to man or from man to animal.

Information is asked for under the following heads:

(1)—A history, with particulars, of any case of tuberculosis in man which has appeared to the observer to be caused by the use of tuberculous food (meat or milk) or by attendance on tuberculous animals.

(2)—A history, with particulars, of any case of tuberculous infection of animals which has appeared to the observer to have been contracted from human subjects suffering from tuberculosis.

(3)—A history, with particulars, of habitual use of animal food believed by the observer to be tuberculous in cases where individuals or communities have kept free from tuberculous disease.

Replies to this inquiry will be received by Mr. Leopold Hudson, the Secretary of the Commission, at the above address.

February, 1891.

Pathological Contributions.

PLEURO-PNEUMONIA.

During the four weeks ended March 14th, there were 15 fresh outbreaks of pleuro-pneumonia in Great Britain,

dealt with by the Board of Agriculture: 41 diseased cattle were slaughtered in the counties of Lancashire, London, Salop, Surrey, and Midlothian. The number of healthy cattle slaughtered because they had been exposed to the risk of infection was 463; they were in the counties of Lancaster, London, Salop, Surrey, Warwick, Forfar, Haddington, Lanark, Linlithgow, Midlothian, and Stirling.

In Ireland during the four weeks there were 16 fresh outbreaks of pleuro-pneumouia, all of them in the North and South Dublin Unions; 32 cattle were attacked, and 387 healthy ones were slaughtered because they had been exposed to the risk of infection.

ANTHRAX.

In the four weeks above mentioned 14 fresh outbreaks of anthrax have been reported in Great Britain, in the counties of Chester, Cumberland, Essex, Lancaster, Lincoln (Kesteven), Northampton, Somerset, Stafford, Suffolk, Wilts, York (North Riding), York (West Riding), and Ayr. The number of animals attacked was 26; none of which were killed; 24 diseased animals died, 3 recovered, and 3 remained alive at the date of the last return.

In Ireland 5 outbreaks of anthrax were reported in which 11 animals were attacked.

SWINE FEVER.

In Great Britain 276 outbreaks of swine-fever were reported in the four weeks; 1379 swine were attacked, 694 diseased pigs were killed, 515 died, 218 recovered, and 201 remained alive when the return was made up.

In Ireland 27 outbreaks of swine-fever were reported, 47 swine were attacked, 36 diseased pigs were killed, 11 died, 11 recovered, and 1 remained alive at the date of the last return.

RABIES.

There were 8 cases of this disease reported in the counties of Dorset, Essex, Hants, and Lancaster.

In Ireland there were 15 cases of rabies in the counties of Carlow, Clare, Fermanagh, Galway, Leitrim, Roscommon, Westmeath, and Wexford; 8 of these cases were in dogs, 6 in cattle, and 1 in a horse.

THE VETERINARIAN, APRIL 1, 1891.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

EXPERIMENTS WITH KOCH'S FLUID IN THE DIAGNOSIS OF TUBERCLE.

IN the *Veterinarian* for February we referred to some experiments at the Royal Veterinary College, and at Dorpat by Herr Gutman, in which a rise of temperature occurred after the injection of the agent into the suspected cattle. Continuing the subject we now quote from *Des Kaiserlichen Gesundheitsamtes* of February the 3rd.

"Preliminary Notice on the Application of Koch's Remedy to Tuberculous Cattle.

"The favorable results which have been obtained with Koch's remedy in diagnosing tuberculosis in man have induced the Imperial Sanitary Office, with the consent of the Secretary of State for the Interior, to test the diagnostic value of the remedy in the case of tuberculous cattle. Hitherto the effectual suppression of this widespread disease has been subjected to the disadvantage that the disease could not be easily determined with certainty in the living animal. In the event of Koch's remedy proving a satisfactory agent for the determination of bovine tuberculosis, its value would be considerable not only for the sanitary police, but also in the development of stock breeding in agricultural centres. For the purpose of a preliminary experiment to ascertain whether Koch's remedy would bring about a reaction in tuberculous cattle, and, if so, in what dose, two cows and a heifer were provided by the Imperial Sanitary Office, which were placed in an experimental stable attached to the Imperial Veterinary High School at Berlin. The experiments were conducted, according to the views of Dr. Koch, by Veterinary Adviser Roeckl, of the Imperial Sanitary Office, and by Dr. Schültz, Rector of the Veterinary High School. The cows used in the experiment were both selected as being tuberculous by Professor Eggeling from a large herd. The heifer was to all appearances healthy, and served as control subject. Each animal was examined at regular short intervals for several days before and after the inoculation as to its condition, especially as regarded temperature, pulse, and respiration, and afterwards slaughtered. Each animal was inoculated with 0·5 c.cm. of Koch's remedy, thinned by 4·5 c.cm. of a ½ per cent. watery solution of

phenol. The whole dose was inoculated at once behind the shoulder, after the hair had been shaved off and the skin washed and disinfected. The point of inoculation was afterwards closed with a wad saturated with iodoform collodium.

"The results of the experiments were absolutely satisfactory, being in each case as follows:

"*Subject* 1.—Seven-year old cow, of Dutch race, 560 kilos. live weight, big with calf, and consequently not in milk. In the scanty sputum expectorated after coughing there were no tubercle bacilli; temperature 38·8° to 39·0°; pulse 64, and respiration 18 to the minute. Injection took place at 8.30 a.m. on January 24th. The temperature rose with fluctuations until 9 p.m. to 40°, and reached its highest point on the following morning from 3 to 5 a.m. with 40·3°; at 8 o'clock it was still 40°, and sank by 1 p.m. to 39°. Upon a *post-mortem* of the cow, the lungs and lymph-glands of the chest cavity were found to be highly tuberculous; the spleen was somewhat swollen; in the cheesy masses of the lung cavities there were numerous tubercle bacilli.

"*Subject* 2.—Seven-year old cow, of Dutch race, 590 kilos. live weight, not in calf, milking three quarters only. From the fourth quarter a small quantity of watery cloudy fluid was milked; no bacilli in the latter or in the milk. Temperature 38·1° to 38·7°, pulse 48, respiration 12 to 16 per minute. Soon after the inoculation, which took place at 9 a.m. on January 26th, there was an increase of temperature, which stood at 40·2° at 8 p.m., and reached its highest point at 1 a.m. next day with 40·9°; at 7 a.m. it had receded to 40·1°, and at 3 p.m. registered 38·9°. Dissection of the cow revealed many old tuberculous deposits and fresh nodules, as well as echinococci in the lungs, tuberculous changes in the lymph-glands of the chest cavity, isolated nodes in the liver (here also echinococci) and in the spleen; the latter was swollen. In the cheesy masses of the lung cavities were numerous bacilli.

"Thus in both cows a definite feverish reaction set in eleven hours after inoculation, and continued for a further period of eleven hours. Several hours after the inoculation a redness, swelling, and painfulness was observed in the neighbourhood of the point of inoculation in both animals, but this disappeared in the following days.

"*Control Subject* 3.—Three-year old heifer, of Angler race, 327 kilos. live weight. No symptoms of disease observed. Temperature 38·3° to 38·8°, pulse 52, respiration 14 to 16 per minute. No general or local reaction followed the inoculation, which took place at 9 a.m. on January 26th. The animal was found healthy on slaughter.

"These undoubtedly favorable results of the preliminary experiment demand further and more comprehensive investigations, and arrangements have already been considered for the prosecution of such experiments. More detailed accounts of the preliminary experiments will be issued in the work published by the Imperial Sanitary Office.

"The results agree essentially with the reports of Gutman in Dorpat, published in the *Baltic Wochenschrift für Landwuthschaft,* &c., No. 51, 1890, and of Dr. Sticker at Cologne, issued in the *Archiv für animalishe Nahumgsmittlekunde,*

1891. Gutman inoculated three tuberculous cows with 0·1, 0·2, and 0·3 c.cm. of Koch's remedy respectively, and two healthy control animals (steers) with 0·3 c.cm. each, and in the case of the tuberculous cows obtained a distinct feverish reaction. In the steers, the healthy condition of which was determined by slaughter, no reaction had set in after twenty-four hours. Dr. Sticker inoculated four cows suspected with tuberculosis (one of which was aferwards slaughtered and found to be tuberculous) with 0·1 c. cm. of Koch's remedy to each, and obtained in one instance in seven hours, in the others in about nine hours, pronounced symptoms of feverish reaction."

The following more extended experiments are from the *Milch Zeitung* of March 21st:

"EXPERIMENTS WITH KOCH'S TUBERCULIN ON COWS.

"*Inoculation of Thirty Cows by Veterinary-Surgeon Delvos M. Gladbach.*

"Thirty cows belonging to Mr. Sat. H. were inoculated. The temperature of the animals before inoculation ranged between 38° and 39° C. 0·2 c.cm. of tuberculin, thinned by a solution consisting of 1 grm. of distilled water with 0·05 grm. of carbolic acid, were used.

"The only change noticeable in the general health of the animals is a diminution of about 2 to 4 litres in the quantity of milk obtained from the cows. In two of the thirty milch cows a reaction took place.

"In one of the two the temperature stood at 40·5° C. after ten hours. This animal was slaughtered, and on *post-mortem* examination old tuberculous deposits were found in the tops of both lungs. The lymph glands in the chest cavity were swollen, and the posterior section of the pleura invested with fresh red tuberculous granulations. This cow had exhibited no symptoms of tuberculosis during life.

"In the second cow the temperature rose to 41·3 in ten hours. Auscultation of the lungs revealed crepitation and bronchial respiration. Cough whenever the animal stood up. The same cow was inoculated four days after the first injection with 0·3 c.cm. of tuberculin, but no reaction took place. The owner has now isolated this cow and does not sell its milk.

"*Inoculation of Five Cows by Veterinary-Surgeon Heine-Allstedt.*

"Of these five animals two were suspected of tuberculosis, while the remaining three were apparently healthy. For inoculation a dose of 0·05 grm. (in one suspected case 0·025

grm.) of tuberculin in a corresponding thinning solution was employed. The general health of the animals, apart from the feverish reaction, was not disturbed.

"*Cow* 1.—Temperature 38·5°, respiration 12, pulse 48. Increase of temperature, after injection of 0·1, to 39·2° in twelve hours; eight hours later receded to normal. Pulse increased to 60; respiration not affected.

"*Cow* 2.—Inoculated at 12 noon with 0·05 gr. Temperature exhibited slight increase from 38·5° to 38·9° at 10 p.m. Pulse and respiration unaffected.

"*Cow* 3.—Nine hours after injection of 0·05 gr. the temperature rose from 38° to 39°, sank in a few hours to 38·2°, and ten hours later again rose to 38·9°, and afterwards receded to the normal. Pulse and respiration not affected.

"*Cow* 4.—Injection of 0·025 gr. at 3 p.m. Pulse 38·5. In six hours the pulse rose to 39·6°, and regained its normal in fifteen hours. A transitory and slight increase of pulse and respiration. This cow was suspected of tuberculosis.

"*Cow* 5.—Temperature 39·7°. Thirteen hours after the injection of 0·05 gr. the temperature rose to 40·4°, and receded ten hours later to 38·8°. Increase in pulsation four hours after injection, and at the maximum temperature rose from 48° to 76°. The respiration increased by 9. This cow was recognised as tuberculous while alive. No local reactions."

Extracts from British and Foreign Journals.

KOCH'S TREATMENT—EXPERIMENTS ON CATTLE.

"Professor Bollinger, of Munich, gives (*Munch. med. Wochenschr.*, January 13th, 1891) a summary of some experiments with Koch's fluid made in the Veterinary Institute at Dorpat by W. Gutmann on three tuberculous cows. The disease was diagnosed partly by physical examination, partly by the presence of tubercle bacilli in the bronchial mucus and in the milk, and partly by changes in the lymphatic glands. Relatively large doses were employed; 0·1 gr. being injected into one animal, 0·2 gr. into a second, and 0·3 gr. into a third. The injections were made behind the shoulder-blade. The temperature was taken every hour on the day of the injection and the following day and night. In all three animals the temperature began to rise about eleven hours after the injection. The reaction corresponded to the amount of the remedy exhibited; the maximum attained in the first animal being 40° C., in the second 40·8°, and in the third 41·7°. The duration of the fever in the three cases was four, nine, and ten hours respectively. In the first cow another injection of 0·3 gr. was given four days after the first; reaction came on in from eleven to twelve hours and

lasted four hours. In all three animals during the febrile period there was some difficulty of breathing and loss of appetite, but the next day they took their food well and rumination was active as usual. No rise of temperature followed the injection of 0·3 gr. in two healthy bulls which were used as 'control' subjects. Twenty-four hours after the injection they were slaughtered, and all the organs were found to be perfectly normal. Gutmann, therefore, concludes that Koch's remedy is a most valuable aid to diagnosis in the case of cattle suspected of tubercle. In this view Professor Bollinger agrees with him."—*Brit. Med. Journ.*

Commenting on these experiments the *British Medical Journal* says:—"The experiments recorded in the supplement to the *British Medical Journal* of January 24th (Abstract No. 89) affords subject matter for very careful consideration. In three cows in which tuberculosis was undoubtedly present, as determined by physical examination and by the presence of bacilli in the bronchial mucus and in the milk and by the changes in the lympathic glands, 'reaction' was obtained in proportion to the amount of fluid injected, whilst in healthy control animals no rise of temperature was noticed. It is evident from this that whatever may be the ultimate result of treatment by Koch's fluid, we have in it an agent that may prove of the greatest value in helping to form a diagnosis of tuberculous disease in cattle; and we have here an indication of the lines on which, for a time at any rate, much of the experimentation with Koch's lymph must be carried on. Some physicians and surgeons have been so unfortunate in the selection of their cases, that they have already resolved that until more is known of the action of the remedy on the human subject they will be very chary indeed of using it as a therapeutic agent. The veterinary surgeons, however, will scarcely be deterred by such considerations. It is often an exceedingly difficult matter to determine whether a cow is tuberculous or not; and if these experiments are to be relied on, all that is necessary to obtain confirmation of the diagnosis is to inject some of the fluid. We can scarcely look forward to this being used as a method of treatment for the disease in cattle (except in the case of pedigree animals), but in the hands of veterinary surgeons it will prove an instrument of precision of the very highest value. It will enable them to state in all doubtful cases what animals should be condemned as tuberculous and which should be allowed to remain in the cow-house without danger of infection to the other cattle. These experi-

ments certainly open up a most important and fruitful branch of research to the veterinary profession. And it will at once suggest itself that the consideration of this question might with advantage occupy the attention of the Royal Commission on Tuberculosis now sitting."

CANTHARIDIN TREATMENT OF TUBERCULOSIS.

"We may refer those who are interested in the newly-found substitute for Koch's liquid to the pages of our esteemed contemporary, the *Berliner klinische Wochenschrift*, which devotes many pages to the textual report of the proceedings of the Berlin Medical Society on the 25th ult., when Dr. Oscar Liebreich discussed the pharmacological and therapeutical properties of salts of cantharidinic acid. Drs. Paul Heymann, G. Guttmann, and B. Fraenkel related cases in proof of the efficacy of the minimal doses (averaging two decimilligrammes) of the drug used as subcutaneous injections in cases of tubercular disease. The evidence adduced by these experienced observers is all the more valuable, since they have been for the past few months carefully following up the results of Koch's injections, in cases of laryngeal phthisis particularly. The local changes and the general improvement ensuing upon the cantharidin injections appear, in the few cases that have been so far treated, to have been very marked, and, what is more to the point, to have been unattended by any of the drawbacks with which the use of 'tuberculin' is so often associated. Unless the 'enthusiasm' has outrun even that which was displayed in the early days of Koch's remedy—and we can hardly suppose that the lesson then taught has been given in vain—it does really seem as if Dr. Liebreich's pharmacological speculations are likely to be fruitful in many ways. We may remind our readers that he selected this substance because of its known remarkable property of exciting exudation from the capillaries. That property, which is patent to all when the skin is subjected to the action of a blister, is doubtless likewise exerted into internal organs, notably the kidneys and sexual organs, when cantharides is taken internally. Nay, it has been found to produce pulmonary œdema; and Dr. Leibreich said that he had found it recommended (in English literature too) in certain pulmonary diseases. He reasoned then that, since it has some selective property—*e.g.*, a much greater affinity for the renal glomerular capillaries than for the vessels in

other parts—it was not unlikely that, in the case of capillaries in a morbidly irritable state, its effects might be exerted by doses quite inadequate to excite transudation in the normal body. As to its applicability to tubercle, he ventured on the further surmise, that its action might be an indirectly specific one, since the researches of Buchner and Stern have shown that blood-serum has a bactericidal action. Commencing with the greatest caution, and finding that a dose of six decimilligrammes excited hæmaturia in one case, he recommended that no more than one or two decimilligrammes of cantharidin in alkaline solution (one cubic centimetre of which contained two decimilligrammes) should be injected, and that an interval of one day might elapse between the injections. Renal disease is, of course, a contraindication. Stranguary, hæmaturia, and other symptoms were observed by Dr. Heymann in some of his cases, symptoms which soon disappeared on suspending the injections for a short time. It is clear that in Berlin professional interest will be centred for some time upon the relative value of 'tuberculin' and 'cantharidin' in tuberculosis."—*Lancet.*

PROFESSOR LIEBREICH'S REMEDY FOR TUBERCULOSIS.

"We, the *Lancet,* have received by telegram from our Berlin correspondent an account of the remedy which Professor Liebreich has introduced as a means of combating tubercular disease, and the good effects of which were vouched for by Professor B. Fraenkel in his speech at the Berlin Medical Society on February 18th, 1891. It was at the meeting of this Society, on the 25th inst., that Professor Liebreich gave an account of his remedy; which consists of cantharidate of potash, a combination of 0·2 grm. pure cantharidin and 0·4 grm. of potassic hydrate, in 20 cubic centimetres of water. In his opening remarks Professor Liebriech regretted that the older methods of treating disease had been so much lost sight of; and he said that he had been led to think of cantharidin in the present connection by the good effects observed from the prescription of cantharides in skin diseases. The specific property of cantharidin is to excite serous exudation from capillary vessels, and he argued that this effect would more readily occur if those vessels were already irritated. In applying the drug to cases of tuberculosis, he proceeded very cautiously, commencing with injections of 1-50th of a decimilligramme of the

solution of the cantharidate of potash, and gradually increasing the dose. It was found that the expectoration was thereby increased, and that the ordinary dose required to produce substantial effect was one to two decimilligrammes. It is likely that six decimilligrammes would be the maximum amount that could be safely used. No cures have yet been affected ; but, as already said, Professor B. Fraenkel and Dr. Heymann have been struck with the remarkable amelioration of cases so treated, and with the absence of any untoward symptom. The drug probably only effects the diseased tissues, and it may be applicable to other affections than tubercle. The address was followed by great applause."—*Ibid.*

INOCULATION OF TUBERCLE.

"Dr. Franz Tangl (*Centralbl. für allgemeine Pathologie u. pathologische Anatomie*, Band I, No. 25, December 1st, 1890) gives the results of a series of experiments on the inoculation of rabbits and guinea-pigs with tuberculous material. In the first series he placed small tubercle nodules from the lungs of tuberculous rabbits in a small patch of the dura mater, or injected an emulsion of tubercule in distilled water or pure cultivations of tubercle bacillus into the subdural space. In two cases this was followed by local disease, and, if the animals lived long enough, by general tuberculosis. The local disease was confined to a single point if the nodule of tubercle was used, but if a fluid emulsion was injected there was disseminated tuberculosis of the meninges, to which the virus had access primarily. In a second series pure cultivations of tubercle bacillus were dropped into the unbroken conjunctival sac. In rabbits the results were absolutely negative, whereas in guinea-pigs extensive tuberculosis of the mucous membrane of the nose was frequently the result. In a third series the nostrils of rabbits and guinea-pigs were painted by means of a very soft brush with an emulsion of tubercle bacillus. In some rabbits the results were negative, bnt in others, and in all the guinea-pigs, there appeared local tuberculosis of the mucous membrane of the nose, and if the animals lived long enough general tuberculosis made its appearance. The author concludes that he must agree with those who hold that primary disease of the lymph-glands does not occur—that is, that tubercle bacilli cannot enter the tissues without causing tuberculous changes at the point of their entrance."—*Brit. Med. Journ.*

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Monthly Council, Wednesday, March 4th, 1891

The Earl of Ravensworth, President, in the chair.

Veterinary Committee.

Sir John Thorold (Chairman) stated that Professor Brown had presented the following report:

Pleuro-pneumonia.—During the four weeks ended February 21st there were seventy-five cattle affected with this disease slaughtered in Great Britain in the Counties of Hants, Kent, Lancaster, London, Surrey, Warwick, York (W. R.), Forfar, Lanark, Midlothian, Perth, and Renfrew. In the same period 930 healthy cattle which have been exposed to the risk of infection were slaughtered in the Counties of Durham, Hants, Kent, Lancaster, London, Surrey, Warwick, Wilts, York (W. R.), Aberdeen, Forfar, Lanark, Midlothian, Perth, Renfrew and Stirling.

Anthrax.—There were eleven fresh outbreaks of this disease reported in Great Britain in the counties of Dorset, Northampton, Notts, Warwick, York (E. R.), and York (W. R.). In these outbreaks twenty-two animals were attacked, two were killed, nineteen died, and two recovered.

Swine Fever.—During the four weeks 212 fresh outbreaks of this disease were reported in Great Britain; 1391 swine were attacked, 745 diseased pigs were killed, 601 died, 232 recovered, and 201 remained alive when the return was made up.

Rabies.—In England nine cases of this disease were reported in the four weeks in the counties of Essex, Hants, Kent, London, Middlesex and York (W. R.).

A letter had been received from Mr. Lewis P. Rees, of Carmarthen, accepting the post of provincial veterinary surgeon for Carmarthenshire. The Farriers' Company reported that nearly 200 applications for registration has already been received under the scheme for the National Registration of Farriers or Shoeing-smiths.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL TO CONSIDER THE SUBJECT OF PASSING A GRANT OF MONEY TO THE INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY, HELD MONDAY, MARCH 16th, 1891.

Mr. W. B. Walters, Vice-President, in the chair.

Present:—Professors Axe, Brown, and Pritchard; Dr. Fleming; Sir Henry Simpson; Messrs. Trigger, Walters, Wragg, George Thatcher (Solicitor), and A. W. Hill (Secretary).

The *Secretary* read the notice convening the meeting.

On the motion of *Professor Brown*, seconded by *Professor*

Axe, the minutes of the previous meeting were taken as read and confirmed.

The *Secretary* stated that he had received letters from the following gentlemen regretting their inability to attend the meeting:—Professors McCall and Walley; Messrs J. Roalfe Cox, Cartledge, Briggs, Kidd, Lambert, and Taylor.

Correspondence.

The *Secretary* said he had received letters from Sir Henry Simpson and Mr. Cartledge resigning their appointments as members of the Board of Examiners.

On the motion of *Dr. Fleming*, seconded by *Professor Axe*, the consideration of the matter was postponed until the next meeting.

The *Secretary* read the following letter from the Honorary Secretary of the International Congress of Hygiene and Demography:—"To the President of the Royal College of Veterinary Surgeons. Sir, I am desired by the Organizing Committee to ask you to allow yourself to be nominated as a member of the Honorary Council of the Congress. As the nominations will be submitted to the General Committee, which is to meet on Monday, March 16th, under the Presidency of His Royal Highness the Prince of Wales, an early reply is requested." He (the Secretary) had been directed by Professor McCall to write to the Honorary Secretary and say that he had much pleasure in accepting the office. The following summons had also been sent to Professor McCall:—"A meeting of the General Committee will be held at 20, Hanover Square, on Monday, March 16th. His Royal Highness the Prince of Wales has kindly consented to preside, and will take the chair at 3.30 o'clock precisely. It is hoped that members of the committee will be in their places not later than 3.15 p.m. G. V. Poore, Honorary Secretary-General." Professor McCall had directed him (the Secretary) to acknowledge the letter, at the same time regretting his inability to attend. The President had asked him to read the list of names of the Section III:—"Relation of the Diseases of Animals to those of Man," which was as follows:

President, Sir Nigel Kingscote, K.C.B., Chairman Board of Governors of Royal Veterinary College.

Vice-Presidents, Professor G. T. Brown, C.B. (Director of Veterinary Department of Board of Agriculture); George Buchanan, M.D., F.R.S. (Medical Officer Local Government Board); E. Klein, M.D., F.R.S. (Lecturer of Physiology at St. Bartholomew's Hospital); Professor James McCall, F.R.C.V.S. (President of the Royal College of Veterinary Surgeons).

Secretaries, W. Duguid, F.R.C.V.S. (Assistant Inspector of Veterinary Department Board of Agriculture); G. Sims Woodhead, M.D., F.R.S.E. (Director Research Laboratory of the Conjoint Board of R.C.P. and R.C.S.); Ernest Clarke (Secretary Royal Agricultural Society).

The *President* said he should be pleased to hear any remarks

with reference to the passing of a grant of money to the International Congress.

Professor Axe said he thought the members of the Council would be pretty well unanimous as to the advisability of making a grant for the object of the forthcoming Congress. It was certainly a most laudable object, and he thought the Royal College should show its interest in it by making a substantial grant towards the expenses which would be incurred. He had great pleasure in proposing that a sum of £50 be contributed by the College towards the expenses of the Congress.

Dr. Fleming, in seconding the proposition, said he thought that the sum was neither too large nor two small. If the Council would permit him, he should like to allude to the circumstances attending the application. It would be remembered that at the last meeting a great deal of dissatisfaction was expressed at the position of the Royal College with regard to the Congress. In the first place, they had been summoned to consider the advisability of sending representatives to the Congress, but on examining the papers before them, it was found that the College had no *locus standi* at all in the matter. Of course, it was rather astonishing that such an important body as their own should be omitted; and, after the last Council meeting, Professor McCall and himself had seen Mr. Clarke and Dr. Poore, and to their astonishment it was found, according to the books of the Organizing Committee, that an intimation had been sent to the College on the 28th of July last, asking them to appoint representatives, and also that a further application had been made at a later date. That, of course, threw them on their beam ends, for it was evident that the Secretary of the Congress had taken care that the College should be included amongst the bodies which were to be represented. He, therefore, thought, however the miscarriage of those letters had taken place, that there was no blame attaching to the Organizing body of the Congress, and that the grievance felt at the last meeting did not exist. As evidence of the desire that the College should occupy a proper position at the Congress, a number of the members of the profession had been elected to serve either in the sections or in the general body. He heartily seconded Professor Axe's proposal that a sum of £50 be voted for the purposes of the Congress.

Professor Brown said he was very glad to hear Dr. Fleming's explanation with regard to the desire on the part of the Committee that the College should be represented. What the difficulty was he did not pretend to know, but he should like to take the opportunity of making a personal explanation. In the report of the discussion of one of the Council meetings he had seen that one of the members had remarked that it was somewhat unaccountable that, having been appointed quite early in the movement as one of the officers of the Committee, he had neglected to make the Royal College of Veterinary Surgeons

aware of the fact. He confessed that he had read those remarks with a feeling akin to profound astonishment, for it was quite beyond his apprehension that any duty of the kind involved upon him, and he in no way considered himself responsible to the Council of the Royal College of Veterinary Surgeons in regard to any appointment which might be offered to him, and which he might choose to accept. If he had thought, or if he could be convinced, that it was his duty to inform the Council of any such appointment being accepted or rejected by him, it would be a matter of conscience with him to obey that conviction; but he really did not apprehend that he was in any way called upon to consider himself amenable to the College for any appointment he might accept, nor did he believed that he was in any way charged with the responsibility of keeping the Council informed as to his professional movements. Unfortunately, the members who took part in the discussion to which he referred were not present, and, therefore, could not enlighten him; but, on the face of it, he thought it necessary to make it perfectly clear that it was from no disrespect to the Council that he had not informed them of his appointment, but from the utter want of conviction that he was in any way called upon to make such a statement to the Council.

Sir Henry Simpson said that he cordially approved of the College joining such an important Congress, and supporting it fairly with its purse. He should like to be satisfied as to whether they were really doing the right thing in voting £50, and whether it should not be £100. Before deciding upon the sum, it might be possible to ascertain what other scientific bodies had given, for it would be better to err on the side of liberality rather than to do anything shabbily. They all knew that Professors McCall, Brown, and Duguid were concerned in the Congress, but he thought the profession would like to know what other members, if any, were associated with it. He was glad to hear that an invitation had been sent to the College, though it had not been received; and it had occurred to him that perhaps the Secretary might be able to find out when the invitations were sent out, and how they had not been received in due course. It was a very serious thing and might happen again.

Dr. Fleming said he wished to explain to Professor Brown and to the meeting why his name had been mentioned. They had necessarily felt themselves rather hurt that the college should have been omitted; but on looking over the list of societies and bodies who had been invited to send delegates, it was impossible to arrive at any other conclusion than that a grave oversight had been made in leaving out the College, for, quite apart from medicine, nearly every section of science and pretty well every branch of art had received invitations. On looking over the list of officials Professor Brown's name was found on the Organising Committee, which was the really re-

sponsible body for sending out the invitations. The remark was then made:—"Professor Brown is on the Organising Committee; it is rather strange that our College should be left out." He did not think that there was any disrespectful allusion to, or any desire to find fault with, Professor Brown in the matter; but merely a feeling of surprise that the College should be left out considering that he was on the Organising Committee, and also vice-president of one of the sections. With regard to the amount subscribed by other bodies, he might mention that he had spoken to Mr. Clarke on the subject, who had mentioned £50 as sufficient.

Professor Brown said that as a member of the organising Committee, if he had attended one of its meetings he should certainly have made a point of speaking of any omission of the kind had it occurred; but he had been told by the Secretary of the Royal Agricultural Society that it had been arranged to call upon the Royal College of Veterinary Surgeons to send delegates. Knowing that, he could not in the least understand why he should have been expected to intimate to the Council the fact of his appointment.

The *Secretary* said that at the previous meeting it was ordered by the Vice-chairman, the Solicitor, and himself should wait upon the Secretaries of the International Congress. They had been received with every courtesy, and it was explained that it was quite an omission. The office-book was produced with the list of names to which formal letters were ordered to be sent, and in that list appeared the Royal Veterinary College and the Royal College of Veterinary Surgeons. He told the Secretaries that he had received no circular, nor had one been received at Camden Town; had it been sent he should have been sure to receive it. He asked the Secretaries to write a letter to that effect, and he had received the letter now read to the Council, again asking for delegates to be appointed.

Mr. Trigger said there appeared to be no evidence as to where the letter was lost, but there seemed to be some evidence that the letters were posted.

The *Secretary* said that there was evidence that the College was on the list of bodies to whom circulars were to be sent, but there was no proof that the circular was posted.

Dr. Fleming said he was sure that there had been no intention of leaving the College out.

Professor Pritchard said he had great pleasure in supporting the proposition that £50 be voted to the purposes of the Congress.

The *Secretary* said that it was also ordered at the last meeting that he should write to the President, asking him to nominate a delegate in connection with himself, and he had nominated Professor Axe.

Dr. Fleming said that he was on the Section of Animal Diseases, and he had been asked to write a paper for dis-

cussion on the subject. Every member of the Congress was supposed to make a private donation, which would entitle him to attend and take part in the discussions.

Sir Henry Simpson said it was very satisfactory to know that the profession was so well represented.

The motion that a sum of £50 be granted to the International Congress of Hygiene and Demography was then put and carried unanimously.

A vote of thanks was passed to the Chairman, and the Council adjourned.

CENTRAL VETERINARY MEDICAL SOCIETY.

The ordinary General Meeting of this Society was held at the First Avenue Hotel, London, February 5th.

Mr. F. G. Samson (the President) was in the chair, and there were present thirty Fellows of the Society and visitors.

The minutes of the preceding meeting were read and confirmed.

Letters were read from Mr. J. B. Martin, of Rochester, Mr. Prudames, and the Honorary Treasurer.

Mr. J. W. Evans A.V.D., and Mr. F. C. Mahon, M.R.C.V.S., of Tufnell Park, London, were nominated for Fellowship of the Society.

Professor Shave proposed that a letter of condolence should be sent by the Society to the widow of Professor Steele, expressing the sympathy of the whole of the Fellows with her in her sad bereavement.

Professor Pritchard, who had been a colleague of the late professor, seconded the proposition, which was further supported by *Mr. F. Raymond*, A.V.D., a fellow officer, and by *Mr. Henry Edgar*, a late pupil of the deceased professor, and was unanimously carried; and the Honorary Secretary was instructed to write accordingly.

Morbid specimens were exhibited as follows by Mr. Henry Edgar:

1. A cystic calculus found in the abdominal cavity of a Sussex spaniel bitch. *Post-mortem* showed a rupture of the walls of the bladder, although the calculus was so large it apparently caused but little inconvenience, until shortly before the animal's death, the only symptom noted by the persons in charge being that she micturated frequently.

2. A thrombus taken from the heart of a dog which dropped dead when excited, having been previously, so far as was apparent, in perfect health.

3. Section of a melanotic tumour taken from the shoulder of a white heifer: the growth measured $9\frac{1}{4}$ inches by $4\frac{3}{4}$ inches, and weighed between three and four pounds. Mr. Edgar pointed

out that melanosis seemed rare in cattle. This was the first case which he had seen.

Mr. Edgar also exhibited an enormous ringbone, and the lower jaw of a horse having an abnormal number of incisor teeth.

Mr. Reddish showed the brain of a horse having a large tumour in connection with the choroid plexus of each ventricle. He explained that the horse had been at work up till the previous afternoon (4th instant), when it was drawing a heavy load in a London street; it stopped suddenly and fell to the ground. He (Mr. Reddish) was called and saw it an hour after, when the pulse was slow, and the animal in a comatose condition: it remained in this state nearly twelve hours and then died. The horse was seven years old, and had worked well up to yesterday, except that about two months ago, when pulling a heavy load, it had stopped suddenly and appeared distressed, but after five minutes rest was able to resume work.

Professor Axe pointed out that tumours in the brain were of common occurence in the horse, but rare in all other of the domesticated animals. It had occurred to him that collars offered an impediment to the blood circulation. It was a remarkable fact that horses continued for long periods of time to work and to show perhaps little or no physiological disturbance, notwithstanding that tumours of considerable dimensions were contained within the ventricles of the brain. He thought this was perhaps due to the slowness of their growth, and to the fact that the brain accommodated itself to the altered conditions which were imposed upon it. The question of clinical interest was that which appertained to the suddenness of the onset, and to its immediate destructive character. One was disposed to ask why did the horse die so suddenly? Was it due to a supreme effort to draw the load, or to a tight collar bearing upon the venous circulation of the neck with undue force? The comparative effect of these tumours and of very small lesions in the brain sometimes startled them. In cases where horses have suffered from "megrims" the only lesion he had found on careful *post-mortem* examination was a slightly congested spot on the floor of the fourth ventricle, this minute lesion necessitating the destruction of the animals.

Mr. Raymond could not reconcile the statement that the horse had shown no indications of the existence of such a large tumour with his own experience of such cases: the probability was, that symptoms were present, but that they had been overlooked by the man in charge. In one case, that of an army horse, mental aberration was shown.

Mr. Raymond proposed, and *Professor Shave* seconded a vote of thanks to Messrs Edgar and Reddish for exhibiting these morbid specimens, which was carried with acclamation.

The *President* then called upon Mr. Hunting for his address on "The Value of Position and Action as indicative of Lameness," which was well received.

Professor Pritchard said their capability of diagnosing lameness must depend to a considerable extent if not entirely upon practical experience, and upon long practical experience. There were one or two useful points which all should bear in mind; one of the most useful perhaps was to be able to determine whether the horse was lame when the weight was placed upon the limb, or whether lame in the movement of it: if this be right, it fell rather foul of something they had heard from Mr. Hunting. Respecting knee and shoulder lameness: considering lameness in the shoulder as a whole, it was impossible for the horse to get the leg forward, but the horse lame in the knee might get the whole limb forward; that he thought should be a guide to them as to whether a horse was lame in his knee, or was suffering from some affection of the shoulder. He considered there were diagnostic symptoms of lameness in the foot. He had never seen a case of lameness from ringbone where the animal did not put the foot unusually forward, and impart pressure to the back of the foot, relieving the front as much as possible: from a mechanical point of view this must be so. Lameness arising from splint was very common in London. He had over and over again noticed, even when splint lameness occurred in old horses, that there was a peculiar movement of the limb in an outward direction every time the animal puts it foot to the ground, and this movement was, he thought, when well marked, sufficiently diagnostic of this particular cause of lameness. Mr. Hunting had dealt with symptoms only, but he did not think he should pass over other aids than peculiarity of action to enable us to diagnose causes giving rise to lameness. There was a great deal to help them in the history of the case; then there were the appearances of the limb, swelling, heat, and alteration in the form of the limb or foot. He thought he could name other circumstances which should be taken as guides to diagnosis, but feared he had already occupied too much of their time.

Professor Axe said although he had not the pleasnre of hearing the whole of Mr. Hunting's paper, he had noticed two or three points which might with advantage be discussed; but first he would suggest that, as far as he knew, it had never been affirmed by any member of their profession that the various forms of lameness to which reference had been made were capable of being diagnosed by the position of the limb alone or by the action alone. Not only so, he thought to rely on such slender evidence would be very unsafe and unsatisfactory, and an unadvisable course for any of their profession to pursue. Diagnosis in dealing with lameness was at all times a difficult matter, and required for its performance all the ingenuity they could bring to bear, and all the means and methods which were at their disposal. Regional diagnosis was not always a difficult matter—that was to say, they found no difficulty in referring lameness to a particular part—but anatomical diagnosis was on every occasion a matter requiring the fullest consideration and care; by

that he meant that while they were capable of referring lameness to a particular joint or region it was, as a rule, with the greatest difficulty they were enabled to refer that lameness to its anatomical seat. With regard to ringbone he had observed that the position of the excresence very materially influenced the position of the foot and limb. For instance, an enlargement at the lower part of the os coronœ in front would cause the foot to be brought to the ground with extreme dependence on the heel, but if the ringbone was situated higher up, and if it did not encroach on the hoof, then there was an inclination on the part of the foot to be brought down toe foremost. Mr. Hunting had suggested that every description of shoulder lameness gave rise to symptoms of the same character. The shoulder was a very important joint, acted upon by numerous muscles, and it had been suggested that when any of them suffered injury that the same symptoms presented themselves. He was not prepared to endorse this. There were questions which could not be gone into at that hour of the evening, and, with the chairman's permission, he proposed that the meeting stand adjourned until the occasion of their next gathering.

This proposition was seconded by the Honorary Secretary, and on being put to the meeting, was carried unanimously, Professor Axe kindly undertaking to reopen the discussion on 5th March next. SIDNEY VILLAR, *Hon. Sec.*

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE general annual meeting and dinner took place on Friday, February 27th, at the Great Western Hotel, Reading. Mr. W. Wilson, President, took the chair.

There was a good attendance of members and visitors.

Mr. G. T. Canon, M.R.C.V.S., Bicester, Oxon, was unanimously elected a member.

It was agreed to hold the next meeting at Didcot, on the last Friday in June.

The *President* than read his inaugural address, followed by a paper on "Tuberculosis in Relation to Veterinary Science." Mr. Wilson's paper, which was well received, was illustrated in a most beautiful manner by the oxy-hydrogen lantern, manipulated by Mr. P. D. Coghill, of the research department of the Royal Veterinary College. The actual tissues were shown in many cases mounted as for a microscope, but enlarged through the lantern, and their exquisite preparation was greatly admired. A number of photographs were also thrown on the screen.

Sections of Normal Lung of Child Injected.

Gangrenous pneumonia, child.
Collapsed lung, child (2).
Miliary tuberculosis (3).

Caseating Tuberculosis and Pneumonia—Plate Cultivation of Organisms found in Air.

Tuberculosus bacillus in position	1000
Mould—Aspergillus niger	1000
Anthrax—mouse spleen	1000
Brewer's yeast, budding	1000
Cholera bacillus	1000
Typhoid bacillus in clusters	1000
Edington's scarlatina bacillus	200
Organisms found in urine	1000
Tuberculosus bacillus in human sputum	1000
Injected brain	250
,, retina, dog	20

Inaugural Address.

Gentlemen,—I will begin the few remarks I have to make by thanking you most sincerely for the honour you have conferred upon me by electing me President of this Association.

It was with considerable diffidence that I consented to my name being proposed for this important position, and I must say that subsequent consideration confirms me in the opinion that I shall make a very inadequate successor to those gentlemen who have preceded me, especially our last and esteemed President, Mr. Wheatley. Gentlemen, I can scarcely conceive it possible that we can sufficiently estimate the advantages which we, as veterinary surgeons, can derive from associations like this. It is by meeting together for mutual improvement, by interchange of ideas, and by discussing professional subjects, that we are in a manner stimulated to work up to, and keep place with, the advancing science of the day; acquainting ourselves with the latest discoveries, and the newest, both of medical and surgical methods of treatment, in connection with the many and important points arising in our profession. These associations are also the means whereby any important questions which concern the well-being of the body corporate may be discussed and analysed, and thus our representatives on the Council may obtain possession of the views entertained by the profession generally.

It is not my intention on this occasion to touch upon any of the controversial topics now before the Council, as time will not permit of their discussion. I hail with thankfulness the kindness and liberality of the Central Veterinary Association in presenting the sum of £50 to the Royal College as a nucleus for a prize fund, which example I trust may be followed by other associations. It occurs to me that it will be a great satisfaction to the profession generally that our Council have settled the question as regards the matriculation examination, thus raising the standard, and making it uniform for the whole kingdom.

The whole civilized world has quite recently been thrown into a state of wonder at the startling discovery announced for the cure of tuberculosis, and I merely mention the fact in passing to remark that our Council have not been unmindful of what they considered their duty as the representatives of a scientific body, by voting a sum

of money and placing it in the hands of a committee, for the purposes of testing the merits of Dr. Koch's discovery at any of our veterinary schools, or to engage the services of some suitable member of our profession who shall proceed to Berlin and procure some of the fluid on behalf of the Royal College of Veterinary Surgeons.

Turning from the Examining to the Teaching College, those of us who are graduates of the Camden Town School cannot fail to be struck with the grand advantages that our present students of veterinary medicine and surgery have in comparison with those enjoyed by their predecessors of only a few years ago. Now, in addition to the regular teaching staff of the College, there are gentlemen eminent in their respective spheres in the medical profession who are giving a series of lectures on their special subjects, and which cannot fail to be of the greatest interest and utility to the students. To mention such names as Dr. Crookshank, Mr. Bland Sutton, Mr. Hickson, Mr. Power, and Mr. D'Arcy Power will be sufficient to show that the veterinary student of the present day has many and great advantages which his predecessors did not enjoy.

A new forge has been built in the upper quadrangle, and on the site of the old one a research laboratory has been constructed, which is under the care of my friend Mr. Coghill, to whom we are indebted this evening for so kindly coming down and assisting to illustrate the few remarks on the subject on which I shall presently speak.

Those of you who in times gone bye used to attend the school would be surprised at the changes which have taken place there during the Session 1890 and 1891. You will recall to mind the old ride on the east side of the quadrangle; well, now it is a matter of history and can no longer be seen, while in its place we have a new and much improved ride, which is larger than its predecessor, and which is covered in, not by a shed roof, but by a handsome new building, which is all devoted to the use of the students.

At the end next the old forge, now the research laboratory, by a splendid staircase we obtain an entrance to the large room which has been set apart as a reading-room and library; the floor is laid with wood in the form of tiles, there is ample light from the top lights, and from windows all round it; and, indeed, it will make one of the finest reading-rooms in London.

Passing from it we enter a large room of equal size to the last, which is to be used as a laboratory for bacteriological instruction, and it is intended that this instruction shall be practical in all its details; the laboratory, of course, is being fitted up in a suitable manner, each pupil will have a table with a water-tap and sink to himself, large incubators and sterilizers will be placed at the disposal of the class instructor; and a visit to this room will make one wish that he had enjoyed the many facilities of the present generation of veterinary students.

From the bacteriological laboratory we pass out to the principal landing at the top of an elegant double stairway, and thence enter the new theatre, within which it is intended that the chief lectures shall be held; it is constructed upon the plans of the latest built theatres

of the medical schools, and is a really handsome hall, well lighted from the top, well ventilated, and with a specially prepared wall screen, upon which diagrams may be projected from the lanterns.

The lecture desk is visible from every part of the auditorium, and the hall (in fact the whole of this additional building) is warmed by hot-water pipes. From this theatre we pass into a large rectangular-shaped room (the largest in the building) which is now to be used as an anatomical museum, it, like all the others, is lighted both from the top and from side windows ; while opening out from this museum can be seen the proposed pathological museum, which in size and construction is the exact counterpart of the library and reading-room at the end of the ride. Still keeping to this new block of buildings, but entering from the back, there is a new slaughter-house and *post-mortem* room, the construction and fittings of which I will not describe further than to say that they are as complete as could be desired for the purpose for which they have been built.

Tuberculosis.

At the present day there is no subject in either the medical or veterinary professions receiving so much attention as this fell disease—in fact, we may say that it is almost monopolising the energies of pathologists to the exclusion of everything else ; but, unfortunately, while we know more and more of the life-history of the micro-organism believed to be the cause, we still seem to be as far as ever from finding a remedy against its ravages.

Bacteriology, the youngest of our departments of science, while yet in infancy, received an impetus from the researches of M. Pasteur, in France, simply because his work produced positive results, and because the subject-matter of his labours was intimately connected with many of the leading industries of his country. Before that time almost all of the investigations into the life-histories and action of the minute fungi which we now term micro-organisms or bacteria, were of interest only from a scientific point of view, but when Pasteur conclusively demonstrated the cause of the disease among silk-worms, and pointed out an efficient method of curing the same, he appealed to that place where it is said mankind "can feel the most," *i. e.* the pocket. It is needless to say that since that time the world at large has been placed under many further obligations to this noble Frenchman, in consequence of his work and researches relating to anthrax, fowl cholera, swine fever, and lastly hydrophobia, and whether we agree or differ from him in the conclusions he has arrived at, we must agree that the stedfast energy of his pursuit deserves success. In England we have had our fair share of discoveries in the domain of pathology and bacteriology from the immortal Jenner, and his vaccination against smallpox—from the introduction of antiseptic surgery by Sir Joseph Lister, which has rendered possible operations otherwise beyond our power, and which has so much reduced the dangers of, and mortality from, the operations performed to arrest the progress of disease, and stay the hand of death. Let any one read

the statistics of the operating theatre before and after the introduction of antiseptics (for any given amputation or operation), and I am certain they will agree that Sir Joseph Lister is well worthy of a place on the roll of fame, alongside Pasteur and Koch, both of whom, though representing very different schools, rank among his many friends. And now, in the present day, we can look with pride and pleasure to the work done by Mr. Hankin and the late Dr. Woolridge. True it is that a great portion of it had to be done in Berlin on account of the restrictive operation of the Anti-Vivisection Acts in this country, but none the less we should never forget that these two Englishmen were the first to realise the importance of what are called the tox-albumens, and that they worked out the effects of these powerful compounds derived from the organism of anthrax; and that in this way, and through them, Koch took up the same line of research in the case of tuberculosis which has resulted in the now famous "tuberculin" or "Koch's fluid." But while France and England can claim each their own leaders with justifiable pride, Germany is not one bit behind, for the name of Koch—Dr. Robert Koch—will ever shed a lustre over the German schools of science. Like his compeer Pasteur, he is a hard and conscientious investigator, respected by all who know him, beloved by his patients, adored by his pupils. To his investigation we owe all we know of the micro-organism of cholera, and a good deal of information about anthrax as well; but, of course, his many years of labour which resulted in the discovery of the bacillus tuberculous, and still later his proposed remedy against its ravages has made his name a household word all the world over.

The life history of many of the organisms which are classed as pathogenic has been carefully watched under varied conditions, and each stage has been duly placed upon record, but unfortunately this has been an impossibility in the case of the tubercle bacillus; partly on account of its extremely slow growth, on account of its small size, on account of the difficulties of finding suitable media upon which to cultivate it, and because of certain other difficulties, optical, physical, and chemical; but we do know as the results of observation by many investigators in various parts of the world, that it is governed by the same unchanging laws of nature which control the actions and the reproduction of species. We know that it does *not* originate spontaneously, but that, like other fungi, the mature plant may form spores, which, differing in their constituents from the plant which produced them, are able to resist to a surprising degree the action of heat, cold, acids, and alkalies; so that even after a lapse of months, or years, we may have a *renewed growth of the organism;* and of course this, in our ordinary practice, we term a *fresh outbreak of the disease.* No doubt you expect me to say something about this remedy for tuberculosis, but first of all allow me a few words about the disease itself. What is it? How does it run its usual course? Is it really incurable or not? Have we yet found a cure and, if so, what is the cure in question?

What is it? The name "tuberculosis" is a most suitable one,

for in almost every case its presence and progress is marked by the formation of tubercles or nodules in the affected part, or rather this is the first naked-eye appearance; but then the question arises—How come these tubercles to be formed? and this we answer by referring to Koch and his work. A minute fungus or bacillus which can only be seen by the aid of powerful lenses, and which measures one six-thousandth part of an inch long, obtains an entrance into the body of either man or animal by inhalation, ingestion, or inoculation; and if there happens to be any part or organ of the body in a receptive condition, there, in all likelihood, will this micro-parasite find a suitable field for its further development and growth. We know that by its action upon and within the tissue, and it may be by the chemical action of products given off by the organism, that the tubercles or nodules we have just mentioned are set up. If we harden, section, mount, and microscopically examine the tissue in which tubercular lesions have taken place, we will find that there are numerous changes in the histological structure, conspicuous among which are the formation of giant-cells and ordinary cells in the process of degeneration. I now show you on the screen what the giant-cell formation is like, because it is one of the most certain indications of tubercular degeneration. If now you stain the tissue in which giant-cells have been discovered with fuchsine or aniline dye by any of the well-known methods, you may find in and around the giant-cells the bacillus tuberculosus more or less numerous; that on the screen represents the organisms in the spleen of a rabbit, and the previous one is taken from a case of tuberculosis in man; and you will notice how much alike in both cases is the distribution of the organisms. When, by ingestion, this bacillus invades an animal we look for the lesion in the mesentery and glands, in the liver, and in the intestine, and it is not unusual to find the organism vary in size in the different organs of the same animal; for this phenomenon, however, I can offer you no explanation. The photograph now on the screen represents the bacilli as found in the wall of the small intestine of a pig, and you will observe that they appear very much larger than those we have just seen in the giant-cells.

Upon the authority of Prof. MacFadyean, of Edinburgh, we have it that the horse is peculiarly subject to the action of this parasite, and certainly the greatest number of them from one field that ever I have seen was obtained upon a case of tuberculosis in the horse at the Royal Veterinary College a few weeks ago. We may well hope that some action will be taken by our rulers as a result of the present Tuberculosis Commission, for it may already be considered as a matter settled beyond all doubt that this fell disease *can be and is* transmitted from man to animals, and from animals to man. It is with great pleasure that I tell you that the veterinary profession is working hand in hand with the investigators of the medical schools, and I am certain that the interchange of opinions will be mutually profitable. It is well to remind you,

however, that your everyday experience proves that there may be tubercles or nodules found in the tissues which have no connection with tuberculosis, however much in some respects they may appear to be like it, and not a few times have the nodules of actinomycosis been mistaken for tuberculosis by the unwary (when only a cursory examination could be made; but of course the microscope reveals the difference if other methods fail. On the screen I now show you a photograph of actinomycosis, the ray fungus as it is called; these photographs are magnified 200 diameters; while the tuberculosus bacillus were magnified 1000 diameters, and now you see an actual section of a glandered lung of a horse studded with nodules all over, you may compare it with the nodules of tuberculosis in the lung of a young child, which will next be shown.

Are we to consider tuberculosis as one of the incurable diseases? This is a most important question, and demands our serious consideration, although it goes without saying that it is of more importance from a medical than from a veterinary point of view; in that case the life of a human being is at stake—a life which is beyond all price, while from a veterinary side of the question it is (and ever will be) only a matter of £ s. d., but even in this respect the question is important, and we will hail with satisfaction the time when a remedy is discovered, but that time is not yet. A few months ago we were in high hopes that the remedy was found, today we are bound to confess the prospect is by no means so bright. Dr. Koch, working upon the lines of our countrymen Hankin and Woolridge, determined that the tox albumen formed by the bacillus tuberculosus was a certain medium by which the disease itself might be *diagnosed;* and he also had *some idea* that by introducing it into the circulation of the patient, that the further development and reproduction of the bacillus might be arrested or altogether stopped. Most unfortunately, as it turns out, he was forced by his Emperor, at the instigation of his indiscreet friends, to prematurely disclose his views and plans, and while Koch himself upon each and every occasion warned everyone concerned that he was by no means certain of this being the case, the whole world got into a fever of excitement, expectation and hope. At the present time we are in the midst of a reaction which is just as unnatural as was the previous excitement, and when this reaction and disappointment is over I have no doubt we will be able to appraise Koch's discovery at its true value, as a means of diagnosing but *not of curing* tuberculosis. Yet every post-mortem room furnishes the physician and surgeon *with evidence of the most certain description, that the disease is curable*—that Dame Nature knows a remedy for the repair of lung tissue, and for the expulsion of the bacilli; and we can now but hope that some one of the many earnest workers in the near future may discover that secret.

I must, however, tell you that in the Royal Veterinary College, experiments are now being carried on, and will be published in due course; this much I tell you because it is right you should know

that our veterinary schools are just as much alive to the importance of the investigation as the sister schools of the medical faculty. Experiments have proved that this disease may be communicated from man to the lower animals, and there can be little doubt that from animals it may be transmitted to man. It goes without saying that veterinary surgeons, properly trained as inspectors of markets and of our meat supply, in the near future will play an important part in the internal economy of our country; and when that time does come, I know, I feel certain, our profession will be found equal to the occasion—will manfully do its duty, and merit the confidence of our citizens.

Mr. Simpson moved a very cordial vote of thanks to the President for the great pains he had taken to make the afternoon a most interesting and entertaining one. Mr. Wilson's lecture had been most enjoyable as well as instructive, and the only regret was that more of the members had not been present. Instructive as Mr. Wilson's paper had been, Mr. Coghill's illustrations had very materially aided them to appreciate and understand it. (Hear, hear.) Mr. Coghill had taken much trouble and forethought, and he therefore asked the meeting to accord their hearty thanks to him as well as to the President. (Applause.)

Mr. Hanks seconded the motion, which was supported by *Mr. Hurndall*, and carried by acclamation.

The Dinner.

Some thirty members and friends afterwards dined at the hotel, the chair being filled by the President, and the vice-chair by the Honorary Secretary.

The usual loyal, patriotic, and complimentary toasts were duly proposed and responded to, and some excellent songs were given by Professor Bayne and others, which brought a most enjoyable evening to its close. H. Kidd, *Hon. Sec.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

ANNUAL MEETING.

'North British Agriculturist' Report.

The annual meeting of the Scottish Metropolitan Veterinary Medical Society was held in the London Hotel, Edinburgh, on Wednesday, February 28th. There was an unusually large attendance of members, and several prominent agriculturists, including Mr. Cowe, Balhousie, and Mr. Hutcheson, Dundee, were present.

Mr. H. G. Thompson, Aspatria, the retiring President, occupied the chair at the outset, and in his opening remarks referred to the question of dishorning. He was surprised, he said, to hear so many professional men talking about the cruelty of the practice,

and he was afraid they had too many of these drawing-room patent-slippered gentlemen writing about cruelty. He also expressed the opinion that they were indebted to some of the foreign feeding stuffs which were imported into the country for many of the diseases among stock, and he particularly mentioned anthrax as traceable to this source ; for, so far as he had observed, it was a dietetic disease.

Mr. James Clark, veterinary surgeon, Coupar-Angus, the new President, then took the chair, and delivered his inaugural address.

In referring to the question of pleuro-pneumonia, he said :— With all due respect to Mr. Chaplin, I shall hold that we are not getting our proper position, at least in some cases. Especially in the case of the inspection of the cattle *ex Norse King*, landed in Dundee at the end of last year, in which case a port-inspector (Professor Walley) having no connection with the county in which they were landed, was directed to inspect the said animals, totally ignoring the inspector for that district. This suggests to me, and must to every one, that the question of pleuro-pneumonia is still and must remain for an indefinite period a most vexed one.

It will, no doubt, be urged by some that the question is long ago thrashed out ; but this cannot well be said when reference is made to the statistics published yearly by the Veterinary Department, in the report published by the Board of Agriculture, where it will be seen that it is very far from being exhausted.

It was confidently asserted that the Slaughter Order would in the course of two or three years quite stamp out the disorder. As all present are aware, the Order was introduced in March, 1888, and has been in full swing since, and with what success the following table will show. It is only fair to note that, as regards England, a decrease of outbreaks to the extent of 20 per cent. has taken place during the year. With reference to Scotland the case is different, and is as follows :

Year.	Infected Counties.	Fresh Outbreaks.	Cattle Attacked.	Healthy Cattle slaughtered or removed from Infected Premises.
1887	21	324	1380	2680
1888	11	211	771	3887
1889	18	239	866	3492

This condition of matters shows, with all the activity in wholesale slaughter, the increase in animals attacked reaches 12 per cent. over last year. While every one must be prepared to give loyal support to the measures introduced by Government for the suppression of this insidious disease, it must ever remain a source of sincere regret that the Departmental Commission held in 1888 did not see its way to recommend a satisfactory and thorough experiment to settle once for all the merits or demerits of inoculation. I venture to predict that if a jury composed of lay or even professional men had been appointed to settle the matter on evidence produced, the result would have been totally different, and certainly more satisfactory.

I am more convinced than ever of the necessity of such a course after reading an opinion given in the director's annual report of the Veterinary Department of the Board of Agriculture, 1890. At p. 4 the following occurs:—"It is also possible that circumstances may occur in our own country which would render inoculation in particular herds expedient, it being a condition that the inoculated animals should never afterwards be moved except to a slaughter-house for immediate slaughter."

Great and unnecessary stress is laid on the fact that pleuro-pneumonia has not been stamped out in any country by inoculation. Admitting this to be true, it does not prove that such is impossible. Speaking from personal knowledge, and from that of many here to-day, I need only refer to what has already been done in Perthshire and Forfarshire. Inoculation was first tried in Forfarshire, under Local Authority supervision, in September, 1886, Mr. Rutherford being instructed to carry out the operation. At the first half-yearly meeting thereafter, it was announced that, on making a very careful calculation, the clear gain to the county could not be less than £2700 by the adoption of inoculation as opposed to slaughter. The same thing occurred in Perthshire. At the half-yearly meeting, held in May, 1887, the chairman announced that inoculation had been carried out in several herds of cattle, and with the satisfactory result that the county had benefited to the extent of at least £1300.

I may further mention that the Perthshire Authorities issued a circular, asking the opinion of owners of the value of inoculation, and a favourable reply from all, with one exception, was returned. (This evidence, I may state, was also submitted and laid before the Departmental Commission of Inquiry.) I wish further to call your attention to the fact that in no case was any subsequent attack of pleuro-pneumonia traceable to stock which had been inoculated or in contact with such. This equally applied to both counties already mentioned. It need not therefore be wondered that owners are favourable to the operation, so it appears all the more a pity that a proper and thorough investigation was shirked. The principal points requiring solution are:

a. Does inoculation, properly performed, grant immunity to an absolutely healthy animal; and, if so, how long?

b. Will an animal suffering from pleuro-pneumonia show characteristic tail lesions after operation?

c. Do cases of encysted pleuro-pneumonia occasionally occur before or after inoculation, or both?

d. How long does an encysted case of pleuro-pneumonia remain a source of infection?

Other points of interest would, no doubt, be necessary; but if the foregoing had been properly determined, it would have cleared the way to a more thorough knowledge of the disease. A great deal of time and trouble has been bestowed over the discovery of the microbe of pleuro-pneumonia, and it has been stated, particularly by medical experts, that without a knowledge of this

specific micro-organism we cannot properly cope with the disease. This cannot, I think, be urged as an objection when it is considered how eminently satisfactory the adoption of vaccination has proved. Query—How much do medical men know of the microbe of vaccine? In fact, I believe the microbe of pleuro-pneumonia has been discovered, and, no doubt, it is most interesting from a bacteriological point of view. We already know that certain results follow certain actions, and what many consider a grand opportunity has been blotted out by the failure of scientific enterprise, in the Departmental Commission, to advise an experiment in inoculation, particularly when such evidence was brought forward. It seems strange that in our own country all practical knowledge on this question should be ignored, and that all our thoughts and actions must be guided by Continental Authorities.

In the discussion that followed, *Principal Williams*, of the New Veterinary College, expressed his cordial agreement with the President as to the advisability of trying inoculation for pleuro-pneumonia, and he strongly condemned the practice of wholesale slaughter.

Mr. Bowhill, veterinary surgeon, Darlington, then read a paper on swine fever, and claimed that he had discovered the germ of swine fever to be the same as the germ of American hog cholera.

The Dinner.

At the dinner, *Mr. Henry Thompson*, the retiring President, in the name of the Association, presented Mr. R. Rutherford, veterinary surgeon, Grove Street, with a beautiful set of silver candlesticks and table ornaments, together with a gold bracelet for Mrs. Rutherford, which had been subscribed for by the members of the Association as a tribute of respect for Mr. Rutherford.

In making the presentation, Mr. Thompson said that not only had Mr. Rutherford great claims on the gratitude of the Association for the admirable service he had rendered to them as Secretary, but he had still a stronger claim on the gratitude of the country for what he had done in the way of showing stock-owners how to protect their cattle from pleuro-pneumonia by means of inoculation.

In acknowledging the presentation, *Mr. Rutherford* said that the success of inoculation as a preventive of pleuro-pneumonia was a living truth, as could be attested by the dairymen around that table. The Government, under the advice of Professor Brown, had seen fit to put down inoculation in order that the pole-axe might have full swing; but with all their slaughtering, they were making no headway against the disease. He considered that inoculation of different kinds as a means of preventing diseases of different kinds would be a feature not only in the veterinary practice but also in the medical practice of the future. (Applause.)

In proposing the toast of the "Agricultural Interests," *Mr. D. Young*, Irene Park, referred to the great service rendered to agriculturists by veterinary science, and to the fact that the Highland Society had for years gone on spending from £600 to £800 a

year on their Chemical Department, while all that they could afford to spend on the encouragment of veterinary science was only £25 a year.

Mr. Hutcheson, Dundee, whose name was coupled with the toast, said he had been on all these deputations to Mr. Chaplin on the subject of the Pleuro-pneumonia Order. Mr. Chaplin had a mortal bad opinion of Edinburgh, and he seemed to think it was the rottenest place under the sun so far as pleuro-pneumonia was concerned; and it need not surprise them though, some day before long, the Order was issued to have every cow in the city slaughtered. Mr. Chaplin wanted to immortalise his name by slaughtering out the disease, but he (Mr. Hutcheson) might tell him that there was a limit to the patience of the tax-payer, and a limit to the patience of the agriculturist. He had been in Australia, where inoculation was the very salvation of the herds; and there inoculated animals fetched a higher price than uninoculated animals did.

Mr. Cowe, Balhousie, in proposing the health of the President (Mr. Clark), said that when a legislator of the standing of the Marquis of Huntly publicly stated that Mr. Chaplin was led into doing as he was doing through the ignorance of his advisers, it was high time that they had a Minister of Agriculture who was not so ignorant himself, nor so ready in being swayed by ignorant counsellors. Veterinary science and the veterinary surgeons of Scotland had been flouted and snubbed by the present Minister of Agriculture; but a city which produced Jenny Geddes, and a land which produced Bruce and Wallace, should produce men who could rise up and put down such an order of things. When the Highland Society sent a deputation to the Government, after they had taken the evidence of a great number of witnesses, Professor Brown said to them that the countries in which inoculation was most regularly practised were always the worst affected with pleuro-pneumonia. He dared Professor Brown to attempt to prove the statement thus made. He (the speaker) thought that, considering the vast importance to agriculturists of their flocks and herds and studs being preserved in good health, the Government should in every way encourage veterinary science instead of trying to strangle it as they were doing. And what had the Highland Society done for the promotion and encouragement of veterinary science? They had done absolutely nothing beyond paying their veterinary adviser a miserable pittance of £25 a year to attend at their shows, while they had been throwing away vast sums of money every year on their Chemical Department, which had nothing to show for all the money so expended. This might be called "waspish criticism;" but he had fought the directors of the "Highland" on this subject before, and he would do it again. It was simply because the members of the veterinary profession were simpletons that they had borne so meekly with the treatment they had received from the Government and the Highland Society. They should never rest content till the Government gave handsome grants for the encouragement of veterinary science and the main-

tenance of large veterinary hospitals for the treatment and investigation of obscure diseases.

The vigorous speeches of Mr. Hutcheson and Mr. Cowe were received with great applause by the meeting.

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

A MEETING of the Society was held at the Angel and Royal Hotel, Grantham, on Thursday, February 19th. The President, F. L. Gooch, Esq., F.R.C.V.S., in the chair.

Present.—Professor Penberthy, Captain Russell (Treasurer), Messrs. F. W. Wragg, R. T. Hardy, W. H. Brooks, W. Dickinson, F. W. Reeks, J. H. Goodall, R. W. Clarke, C. Hartley, J. Mackinder, James Smith (Hon. Sec.), and E. Morgan and — Thompson (Visitors).

Letters of apology were read from Dr. Fleming, Professors Pritchard and Walley, Mr. Greaves, Mr. Freer, and others.

Representation on the Council.—The minutes of the last meeting having been taken as read, *Captain Russell* said before they went on with the next matter he should like to remind them that there was one matter which they had omitted. As this was their annual meeting it was their duty to select a member of the Association as a member for Council for the year. He believed there was nobody in Lincolnshire sufficiently ambitious to undertake such duties in the Council chamber, and therefore he would have great pleasure in recommending to their notice the name of a gentleman which they would receive with gratification. He belonged to a great number of their Veterinary Medical Associations, and was, at the present moment, Treasurer of the Royal College of Veterinary Surgeons. Whatever he did he did with all his heart, and he had great pleasure in recommending this Association to take him up at the next election. He proposed that Mr. Wragg (hear) be adopted by this Association. *Mr. Mackinder* seconded, and said he believed every member of the profession would give him a vote. He was sure Mr. Wragg was perfectly safe. Eventually it was resolved that the Association would support three gentlemen, namely, Professors Pritchard, Axe, and Mr. Wragg; this was adopted unanimously.

Captain Russell read the statement of the accounts, which showed a balance in hand of £18 8s., and intimated that this would be much larger if all subscriptions were paid in. He had received a letter from Mr. Smith, of Market Rasen, stating that he had forwarded the head of a calf as a pathological specimen.

Mr. Wragg said he should commence the few observations he intended to make by thanking his friend, Captain Russell, for the very kind way in which he had spoken of him and introduced his name to them. He did not know whether they wished him to say

a few words on the burning questions of the day (hear), if so he should be pleased to do so. He could, however, only reiterate what he said at Birmingham the other day. It appeared to him there were three questions upon which they were told by their veterinary journals that members would be elected to the Council Board, and the first was, Is a new Charter requisite? and another was, Is the abolition of the 9th clause necessary? and the third was, Elicit the opinions of members who were candidates as to the dual appointment. As to the new Charter, he certainly thought there were some reforms which could be very well introduced, and he was entirely in favour of a new Charter, and the other day he voted in the majority that declared that a new Charter was requisite. As to the abolition of the 9th clause, he told them candidly he was entirely against that clause being abolished, for this reason. He thought firstly it was a retrograde movement, and the time for discussing that matter was past. Any opposition there was should have taken place when the new Charter was obtained in 1876, and not come from the members of the profession who had joined since then. It might press hardly upon those who were members before, but they had the opportunity of taking the fellowship degree, and he thought every member of the profession was, or should be, capable of taking that degree. When the first agitation sprung up, he made up his mind to take the fellowship degree, and every member who had the profession at heart should take that degree. With regard to the dual appointment, they had several good men on their Council who were also examiners. He might mention Dr. Fleming, and Professor Pritchard. Were they going to turn them off the Councils. He said "No," he would not raise his voice to turn them off the Council. They had been on the Council many years, and they knew the requirements of the profession. He only mentioned these two, but he might include Mr. Cox and other gentlemen, who had always studied the best interests of the profession, and would continue to do all they could to promote its welfare. (Hear.)

Professor Penberthy then delivered the following address on "Anæsthetics":

Professor Penberthy, who was received with applause, said when he was invited to address this meeting, he accepted on the condition that the subject should be chosen for him. When one wandered about giving papers, it was better that the subject should be one best adapted to the requirements of the members of the Association. It was quite impossible for him, in London, to know what would suit a certain district or a certain association. On this occasion, if he had not consulted their President and Secretary, he should have been obliged to make some remarks upon a subject which was before their Association last time. After some little consideration, some weeks ago he submitted a few subjects, and one was selected upon which their Secretary said they would be glad to have a few remarks. He had not had time to prepare a paper, but he had a few remarks for which he must ask their con-

sideration for the rambling condition in which they must necessarily be given, for the subject was a broad one. It had two sides—a scientific and a practical one. It was first with some practical aspects he should have to deal, without attempting to go at any depth into the scientific side. He need trouble them with but few remarks as to the history of anæsthetics, as they had been used from time immemorial. History told them that in ancient times the Chinese recognised their use, and 1500 years ago mandrakes were used for this purpose; they were used for producing loss of sensation for the purpose of operations. He need not go back as far as the Bible, though the prophet Amos, 700 years B.C., spoke of wine producing sleep. In Romeo and Juliet draughts were given removing mental, if not physical pain, but it was only during the last fifty years that anæsthesia was adopted for surgical purposes. In 1830 Sir Humphry Davy discovered nitrous-oxide gas, and in 1845 an American applied this to surgical practice. In 1845 Horace Wells adopted it generally in surgical practice in England, and it was also associated with the name of Sir Jas. Simpson in 1847. It was impossible to calculate what benefit would be conferred upon animal life by applying anæsthetics to the practice of veterinary surgery. Their daily bread was, of course, their first consideration, but if they wanted to make their lives thoroughly happy, they might go beyond the mere accumulation of money, and yet have a fair subsistence with his pleasure, and the greatest pain might be saved to the sentimental. There was no doubt the lower animals were not so susceptible to great shocks as the umann being. Still there was plenty of evidence that they suffered great pain and were seriously affected by that suffering. The greatest advantages were claimed for the use of anæsthetics, as lessening pain to the lower animals, and they (veterinary surgeons) were able to perform operations more calmly and in better from than they did without them, and there was also less risk to them as individuals. These great advantages were quite sufficient to put forward in order to encourage the use of anæsthetics.

An anæsthetic was something which destroyed all sensation. It went beyond an anodyne, which did not interfere with the reflex action so much. Anything which destroyed sensation totally destroyed the reflex action. Anæsthetics might be divided into two—local and general. The local anæsthetics were, in their practice, as useful as general anæsthetics.

Ether spray removed sensation by rendering the part extremely frigid, and many of their minor and some of their larger operations could be performed with ether. It withdrew the latent heat, and they found that the part was absolutely insensitive. There was a great objection to it, however, and that was the loss of vitality which the part suffered from it. There was a great deal of pain during the time it was applied and after the part returned to its normal state.

He held that a more useful anæsthetic was cocaine, and ever

since that had been used it was recognised that it rendered patients unsusceptible to the pain of operations. Cocaine removed pain from large surfaces locally, and he had operated with it for removing very large tumours. He removed seventeen pounds of tumour in twenty-five minutes under the influence of cocaine, with the horse standing, without a twitch or secured in any way whatever. Cocaine was used in a 5 per cent. solution, and a horse would stand a drachm, though he had tried two drachms without poisonous effect. He was afraid what they obtained commercially was a most impure article, and consequently they could not place reliance upon it. He regarded it as the most useful anæsthetic in veterinary practice. In certain forms it did not keep well in water—tabloid form excepted; but if they mixed a few drops of camphor water with it, it would keep an indefinite period. With dogs it was said to cause a certain amount of mortality, but he had never seen the slightest hurt from it; but an assistant of his gave a dog a drachm of the 5 per cent. solution, and, as they would expect, it was followed by death. He had a letter from an old student last week, saying he had had thirty-three operations in dogs, and he gave twenty drops of cocaine of the 5 per cent. solution. If his observations were correct, he did not think that he wanted to see more than this commended to their notice. They all knew well the effects on the mucous membranes, and how they could examine the eye in a perfect manner. This was generally difficult to examine, and he could not help thinking that this drug, cocaine, was extremely useful.

They knew very well that an animal could be reduced to a state of anæsthesia by administering pure carbolic acid. This was a perfect local anæsthetic.

As regarded a general anæsthetic, when loss of sensation was produced, either ether, nitrous oxide (laughing gas), or chloroform was generally adopted. If he dealt with chloroform he should, perhaps, meet their wishes best. He reminded them that when a man had an interest in his daily work, his life was worth living. They had first to count the cost, and he should state that methylated chloroform answered the purpose as well as pure chloroform, if they could judge from the human subject, although it produced a little more nausea. He was told by many practitioners that the administration of chloroform was a source of increase of income to them, but he did not know how it applied to them. That was, they could charge fees for the administration of chloroform which were quite adequate, the expense he was sure they would not allow to be of the slightest consideration. Anyone who had an animal of great value who could be shown that it would not suffer if operated on under chloroform, that the chances of recovery would not be less but greater, they would have no difficulty in getting their clients to adopt it; and again, where sentiment came in, there would be less trouble. The Professor then produced a certain instrument which had been manufactured for the purpose of anæsthising foals and pigs when they were very troublesome.

Anæsthetics might be useful, but he thought that the effects produced by ether, and the nausea following it, would be fifty times greater than the pain produced by the operation. He did not believe in that instrument at all, though it showed them they could introduce anæsthetics into the system *per rectum*. They had also been taught that to get the fumes of tobacco into the system was most useful, and thus they produced narcosis; but he was afraid they would not think it was worth while to apply that operation to colts and pigs. When they came to consider the use of chloroform in the ordinary way, he held they would adopt it more than they did at present; then subjects might be with safety rendered fit for operations by chloroform. Nothing had been said about the danger of giving chloroform to the horse, though there had been much said about the danger of giving it to the dog. He could say that he had never had an accident with a horse, though in the course of his profession he had seen one horse die, which was absolutely poisoned by chloroform. He had twelve ounces, when he (the Professor) only supposed he had had twelve drachms. In another case he could not kill an old horse with chloroform, although he was known to be suffering from heart disease. Thus, so far as horses went, they could not consider the danger of giving chloroform, if it were only given properly. In the dogs he had never had an accident, and he believed that the accidents that followed through the administration of chloroform occurred because people were too careful in giving it, and did not give sufficient before they commenced the operation. Anæsthesia could only be brought about by robbing the brain of its blood, and preventing the oxydation of its cells, or by bringing the blood into such a condition that it did not become oxygenated. They knew very well that they had nightmare sometimes, and that they saw certain things under certain conditions when part of the brain might be in a state of anæsthesia through sleep. They sometimes might be alive to the fact that a lion was coming, though the other part of the brain might be in a deep anæsthetic state of sleep. This was a rather usefnl fact for them to recognise. It was necessary they should understand that the brain should be equally under the influence of chloroform. They had heard of death of animals under chloroform, and he had seen an animal die immediately—as as soon as ever the knife was drawn across the animal collapsed. Chloroform, unlike ether, left the heart centre till last before it paralysed. If the vaso-motor was under the control of chloroform, and not capable of being stimulated, then the animal died from sudden stoppage of the heart. This was what they were liable to if they did not give chloroform sufficiently, and get the whole of the centres immediately under its effect. The local anæsthetics had different effects according to certain degrees of action. They were all stimulants, and then depressed into that state which they called narcosis, in which reflex action was lost. In some cases pain would be felt, and there would be sufficient sensation just to allow of the moving of the limbs. That was a fact that would

affect their operations, because they could not keep the animal steady. With others the spinal cord and brain became attacked, and then came on paralysis. A great deal depended on the amount of chloroform given, but there was not much hope of recovery if paralysis set in for any length of time. When administering chloroform it must be remembered that it was very liable to stimulate the nerves on the top of the throat, and cause a spasm of the glottis or a falling down of the epiglottis. These symptoms were very alarming, and the animal began to gulp and put itself into a position for vomiting. In this condition they should remove the chloroform, and so on as before, allowing the animal plenty of fresh air. The amount of chloroform that should be mixed with the air should be about 5 per cent., but by experience in these matters they might even go as far as 25 or 30 per cent. It was claimed that some of the agents produced asphyxia at the same time with anæsthesia. That was sometimes the effect with chloroform. It was to him a scientific as well as a practical reason for not giving chloroform standing. Some people put on one of Carlyle's muzzles, and let the animal play about until it fell down. He was convinced it was not the best way to chloroform the horse standing, as, if they made up their minds from the first, they could throw the animal without any extra difficulty. When the animal was getting in a proper state of chloroform they had to pay regard to it. If the pulse was weak and still there might be a certain amount of danger, but the only fact they had to look at was, not whether it be fast or slow, but whether it be deep or shallow. They had observed a great difference between the pupil of the human subject and that of the horse. In the human subject the pupil was contracted, and that was taken as a guide; but he had never seen 1 per cent. of horses where the pupil was contracted. In the human subject if dilatation set in, it was thought an extremely dangerous symptom. He had noticed in horses that when perfect anæsthesia set in, their pupils were not in a state of dilatation but rather of contraction, so that they could take that as a guide. If they should have the mishap to get an animal into a state of paralysis after giving chlorororm, they should never desist from making efforts at resuscitation, at least for a very long time. He had seen a horse said to be dead resuscitated in the most perfect manner within forty minutes. In one case he well remembered, by artificial respiration and by giving stimulants, the animal was got round to its normal condition within forty or fifty minutes. If he were in practice he should use nitrate of amyl as an extremely useful stimulant. It was an extremely pungent and most powerful stimulant of the heart, and the best thing that could possibly be used. He thought that they, as members of their profession, were bound to advise the use of anæsthetics. Of course they should not do more than advise. There were many people who had never heard of the use of chloroform to animals; but not only in surgical operations, such as the removal of tumours, but in spasmodic conditions and in parturition it had been used with good effect;

though they must remember that they would not get the help from the mother, as it prevented the contraction of the uterus and the assistance of the abdominal muscles, though it was useful in cases of straining. Lots of practitioners always fired their horses under chloroform, and he knew one man who always got two guineas more for its administration when firing the legs. They would all agree with him that it was advisable to recommend the use of anæsthetics in certain cases, and it was for them to consider if it was practicable, and, if so, to advise its adoption.

He was quite aware of the fact that these remarks were loose and unconnected, but he must plead that he had had no time to properly prepare a paper on this subject. (Hear.)

Discussion.—Captain Russell said, as to the remarks about the action of ether spray, he had had a little experience with it, and he had been given to understand they could not fire horses after its application. They set fire to the skin and burned it owing to the action of the gas. As to cocaine, he quite agreed that it was a particularly useful agent in veterinary practice, particularly for the examination of a horse's eye. Instead of 5 per cent. he had given as much as 10 per cent. of cocaine. As to chloroform, he thought there was a great deal depended upon the manner in which chloroform was administered. He produced a muzzle which he had used for nineteen years, and he never wished to use a better instrument for the administration of chloroform. Another muzzle produced he did not care for, as it was not made large enough. He remembered he once saw Mr. Cox administer chloroform, and he put the horse's jaw into a jack-boot and got one nostril blocked with a sponge saturated with chloroform. In this muzzle an ounce or an ounce and a half of chloroform was quite sufficient, and would take about seven or ten or twelve minutes to anæsthetise a horse, and he did not find that the other muzzle did them in less time. He once had to poison an old horse with chloroform, and he started with two ounces first, and every quarter of an hour gave another ounce and a half. He gave up to fourteen ounces and the horse was still standing. He finally had twenty-four ounces of chloroform and would not die, so he cut his throat to save him the trouble. Considering this horse had twenty-four ounces they need have no fear of killing a horse with chloroform. To operate upon horses standing, he would never try to give chloroform. He had tried that instrument for administering chloroform per rectum, and his advice was do not use it, as it did not appear to him to anæsthetise them in any shape. He had used chloroform with great satisfaction in cases of stoppage of bowels; they could then insert their hand *per rectum* and remove the dung. In these cases, if they put a horse under chlorfoorm, let them lie him quietly down on the bed, get him under chloroform, put the hand into the rectum, and they would have a very good result. Another preparation he used was chloral hydrate, and he had had good results. There was one question he should like to ask Professor Penberthy, and that was as regards hæmorrhage. His experience did not extend to this

but he had heard that if they castrated a horse under chloroform they had a difficulty in suppressing the hæmorrhage. He should like to know what the Professor's experience was in that respect.

Mr. Mackinder said his experience in anæsthetics was principally with chloroform. He tried Carlyle's mask and gave two ounces. It never acted in the least, and they gave two more, and then some more, before they got him under its influence. He thought the after-effects of ether were worse than the pain of the operation, and he certainly should never give ether again. He had been very fortunate in giving it to dogs, and he remembered in one case bringing one round by putting him under the pump. As for using it for all operations, would it pay?

Mr. Hartley, after eulogising Carlyle's gap, said as to his experience in rendering dogs insensible he should not use chloroform, though he had seen some good results. He had a funnel-shaped bag which he used for dogs and horses, and he had no difficulty with it. He quite agreed with Captain Russell as to the inflammatory diseases of the bowels. He liked using *Cocculus indicus*, and used very little opium in his practice.

Mr. Goodall said it was about three years since he saw the first animal chloroformed and she died—it was a foxhound bitch. That was the only case of death he had seen from chloroform. He seldom fired horses without putting them under chloroform. To his mind the great secret of firing horses was to have no noise. Let them put blufts on them and let them walk about, and they would stand quite still.

Captain Russell said that might be so with the high-bred horses which Mr. Goodall attended, but he scarcely thought it would do with cart horses.

Mr. Wragg did not know that he had anything particular to say about anæsthetics. He had used chloroform in several cases, and in one case for taking a horse's molar out—he was so touchy about the mouth that he could not do without it—he also got a piece of another molar as the horse moved his head, but he remained under the influence of the anæsthetic until after he had extracted the other tooth. He should like to ask Professor Penberthy, who had introduced the subject, to explain more minutely his method of bringing a horse round when he thought it was going to die from the effects of chloroform.

Mr. Hartley said he should like to know the right way of inducing artificial respiration. What movement and at what rate?

The *President* (Mr. Gooch) said they were all very much obliged to Professor Penberthy for his very able address. He had given them many practical hints. There was one point of interest which struck him; it was the four different stages of chloroform which he explained. If they judged from these four different stages, it would be one of the greatest guarantees that the animal was in a complete state of anæsthesia. As to performing operations standing, he for one was in favour of firing all horses standing. His father never cast horses for firing, but he did them all with the stocks.

He very seldom used chloroform on the larger animals, and complained that in the provinces they came into contact with impure drugs. In cases of parturition, if he had got a mare which was very restless he invariably gave a dose of chloral hydrate. He did not administer it to cattle, as they could better help themselves; but with mares in parturition it would have the greatest beneficial results.

Professor Penberthy said, as to the question of resuscitation, they should get the head low, as it was the first and most important thing to favour the circulation, and by pressure to drive the blood from the blood-vessels of the brain; at the same time get the mouth open. In the first case to which he referred there was spasm of the glottis. Get the tongue out immediately, grasp it, and pull it out, and keep the head low. If they could not get him right then, put the knife into the trachea, and perform tracheotomy. Get the head as low as possible, the mouth open, get the animal on its side, and lift one of the legs, get a man to put his knee over the heart, and get respiration by lifting the leg as high as they could. As soon as any sensation was obtained, dash cold water or any stimulant on the outside, and about fifteen or twenty times a minute; try to obtain respiration by drawing the fore-limb upwards and pressing the chest, and it will get filled with fresh air. If they should happen to have an accident, let them not give up for a long time. He again recommended nitrate of amyl, which was a stimulant of the heart and its ganglia. Ammonia was apt to irritate the Schneiderian membrane. He had asked Captain Russell if he ever had any bad effects from chloral hydrate. He knew chloral was used by veterinary surgeons on the Continent, where they often gave as much as ten ounces, half a grain for every pound of horse. The objection urged to the chloral hydrate was that it dilated the capillaries, and rather favoured hæmorrhage. As to bleeding after chloroform, he had never had the slightest indication of its favouring hæmorrhage, and he did not think it was held to do so by surgeons.

Captain Russell asked if in an animal under chloroform the muscles were not in a state of paralysis.

Professor Penberthy.—Not paralysis, but anæsthesia.

Captain Russell.—It would be in a state of collapse.

Professor Penberthy.—Yes.

Captain Russell.—Therefore it was quite probable that the involuntary muscles would not be so likely to contract.

Professor Penberthy.—That the voluntary muscles were more affected than the involuntary. So long as an animal was under chloroform, he should think it would favour hæmorrhage; but he had understood Captain Russell to refer to the secondary symptoms. If they wanted to save their chloroform, they should first dip their sponge into warm water, and they could save half their chloroform. He was extremely glad to hear that anæsthetics were so generally adopted in the veterinary profession. It was certainly a sign that they were getting on.

Captain Russell here produced a pathological specimen of a huge anchylosed hock, which he had known in life, and from which the animal never went lame; and also the calf's head forwarded by Mr. Smith.

Next Meeting.—It was resolved that the next meeting should be held in June, at Boston, when Mr. Dickinson promised to give a hypnotic *séance.*

The New President.—Mr. Dickinson was unanimously elected President for the year, and thanked the members for the honour conferred upon him.

An Honorary Associate.—Professor Penberthy was unanimously elected honorary associate of the Society, and *Mr. Jas. Smith* (Hon. Sec.) proposed a hearty vote of thanks to the Professor for giving them such an interesting and instructive address. He held that nothing tended to improve a Society like theirs more than an address of a scientific and practical nature like the one they had that afternoon. (Hear.)

Mr. Hardy, of Sleaford, seconded, and concurred in the opinion as to its being an address both interesting and instructive.

Professor Penberthy said he was extremely obliged for their thanks, and very pleased to have come amongst them. He had intended to refer to that interesting branch of anæsthetics—hypnotism and mesmerism—and was sure they would enjoy the proposed *séance* at Boston. He thanked them for receiving him as they had done.

Mr. Wragg thought they would be wanting in their duty if they did not propose a vote of thanks to Mr. Gooch for the able manner with which he had carried on the duties of his important office.

Mr. Dickinson seconded, and the proposition having been carried by acclamation,

Mr. Gooch responded suitably, and expressed his regret at being absent from the last meeting at Lincoln.

The members then dined together, an excellent and *recherché* repast being served by the host of the Angel and Royal Hotel.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting and dinner of the above Association took place at the County Hotel, Newcastle-on-Tyne, on Friday, February 20th, the President, A. Hunter, in the chair.

Present.—Members:—Messrs. G. R. Dudgeon, and G. Elphick, Vice-presidents; and Messrs. C. Stephenson, J. D. Macgregor, T. Aitken, J. Gofton, A. Peele, C. Hunting, W. Stevenson, C. S. Hunting, J. W. S. Moore, W. Grieve, W. Wheatley, J. Brodie Nisbet, D. Dudgeon, H. Hunter, F. Finney, G. Farro, W. Hunter, J. Aitken, W. Awde, and W. Ashton Hancock, Secretary.

The following gentlemen, members of the South Durham and North Yorkshire Association, were also present on a friendly visit.—Messrs. W. Awde, P. Snaith, H. H. Roberts, H. Snarry, T. Bowhill, and F. R. Stevens.

The following were present as visitors:—Dr. G. Murray, Dr. Ellis, Dr. Davies, Professors McCall and W. Williams, and Messrs. J. Arup, W. Dotchin, and F. Brydon.

The minutes of the previous meeting were taken as read and adopted unanimously.

Letters of regret were received for not being present from:—Professors Cope, Duguid, Walley, and McFadyean. The Medical Officer of Health for Newcastle; and Messrs. Mulvey, Greaves, Peele and Mitchell.

Mr. D. Dudgeon then withdrew his motion with reference to the day of meeting being altered, and in doing so explained that "he found Friday suited most of the members, and especially those gentlemen who were good enough to come and give us the excellent addresses we from time to time received."

The *President* then delivered the following address:

GENTLEMEN,—I sincerely thank you for the high honour you have conferred upon me in electing me your president for the ensuing year. When I arrived at our last meeting (being rather late) I was surprised to hear that my old friend Mr. Dudgeon had proposed me as President, and that I had been unanimously elected. This, no doubt, was very gratifying; but if I had been at the meeting in time I would have protested against it, for I have grave doubts of my suitability for the office. Public speaking is not my forte, in this respect differing from my old college friend and immediate predecessor, Mr. J. W. T. Moore. However, as it is your wish, I have decided to enter upon my duties as President with the determination, if it be possible, to leave the condition of Society better than I found it. In this effort I have every confidence you will all give me your earnest and cordial support. With this assistance, and that of our very valuable and painstaking secretary, I am sanguine of success.

This Society, since it was re-formed in 1879, and probably during its earlier existence, has been the means of doing a great amount of good to its members, and, I may also say, to the profession generally. Many of the suggestions sent from our Society to the Royal College of Veterinary Surgeons have now been carried out, and I think they will prove to be to the benefit of the profession at large. This should encourage us to be no way backward in discussing any matters that we think will be to the benefit of our profession, and, after thoroughly agreeing among ourselves, at once stating our views at head-quarters.

Another circumstance regarding our Society is that its members are well disposed to one another, and we are exceptionally free from those unseemly bickerings and petty jealousies that we unfortunately read of in our journals as occurring in some other kindred

associations. Of course we cannot always agree—it would be very tame if we did—but if we cannot convince the member or members holding opposite views, nor be convinced by them, we agree to differ in a gentlemanly manner, and wait for further development of the subject to prove who is right. This, I maintain, is as it ought to be ; one of the first objects of the Veterinary Medical Association is to promote good fellowship.

I am sure you will be glad to hear that we have some of our "old members" who recently left us to form the South Durham and North Yorkshire Veterinary Medical Association as visitors to-day. We give them a hearty welcome, and only hope that our next annual meeting may see a greater number present. I trust, gentlemen, that many of you may see your way to join me in paying our return visit, as I would wish to keep up this mutual interchange of visits, when instead of one, we will have two strong societies, and thus gain a further advantage. We wish South Durham and North Yorkshire every success. As far as the parent Society is concerned I think there is no fear, but we will continue to improve, as the necessity for societies is gradually increasing owing to the rapid strides science is making, more particularly as regards contagious diseases, many of which are doubtless due to a specific bacillus or microbe, and it is within the range of possibility that antidotes may be found for them all ; so we practical veterinary surgeons must keep up to the times, and be ready to utilise the discoveries made by experienced bacteriologists as Pasteur, Koch, Crookshank, and many others. I hope some of our members will see their way to read us a paper on the above subject. We also have had an addition of new members, and hope this new blood will add materially to the strength and continued success of this Society.

The new remedy for tuberculosis by Koch is exciting the greatest interest in the scientific world, and if extended experience should prove the results to be as beneficial as it is asserted, it will be the greatest boon that has ever been conferred on suffering humanity, even although a good percentage only of patients suffering from this terrible malady recover.

With reference to the application of this remedy to the lower animals we have, as yet, had no experience to guide us, although I am not sanguine as to the results, for the disease is very often in an advanced stage before it is noticed, and—judging from the extensive ravages that the disease has made in the vital organs before attention is drawn to it—it seems scarcely possible that any remedy can effect a cure; but if even it be a sure means of diagnosing tuberculous disease in the first stage, it will be of incalculable value, and will enable the Board of Agriculture more easily to schedule this disease if they wish, and may be the means of exterminating it.

With reference to the new prophylactic recently introduced to this country by Professor McFadyean for the prevention of quarter-ill I have had no opportunity of judging, but if the results are as satisfactory as stated, and their is no danger of its

application causing injurious results, it will be a valuable boon to the agriculturists of this country. I have hitherto relied upon setons in the dewlap as a preventive of this disease, and so far as my experience goes it has been very effective.

The subjects for discussion at the meeting being of such an interesting nature and likely to so fully occupy the time at our disposal, I do not propose making any further remarks, and conclude by thanking you for your presence here to-day and your kind attention.

The notice of motion by Mr. W. J. Mulvey was then brought before the meeting, and, in the absence of that gentleman, a letter from him, addressed to the President, was read by the Secretary; and, on the motion of Mr. D. Dudgeon, it was decided to propose its further consideration, as time would not permit of going into the question as thoroughly as its importance required.

The adjourned discussion on "Endocarditis in the Pig," by C. Stephenson, Esq., with notes and microscopic specimens by Dr. G. Murray, was then renewed.

Mr. Stephenson, in formally introducing it, said endocarditis in the pig had been known some time, and it was evidently identical with a disease among pigs that had been noticed in America.

Dr. G. Murray then gave a very clear demonstration of the specimens furnished him, and, in the course of his remarks, said some of the vegetations were as large as walnuts, and that personally he had not hitherto seen any so large. He then referred to his methods of preparing and mounting the specimens, and stated that Mr. Arup had furnished him with specimens prepared by Dr. Bang, of Copenhagen, and, although he did not wish to put too much reliance on the influence of bacteria as productive of disease until the influence had been proved by inoculation, yet, as far as he could see at present, the specimens he had prepared for Mr. Stephenson were identical in their character with those he had been furnished with (Dr. Bang's) by Mr. Arup.

Professor McCall said that unfortunately he had been unable to pay very close attention to the reports in the journals of the specimens described by Mr. Stephenson and Dr. Murray. In the course of his experience he had examined many hearts, but had not witnessed the vegetations; but he felt certain these growths had no relation to swine-fever as known in this country, and it was his intention to pay greater attention to this question in his *post-mortem* examination of swine.

Mr. Arup said—Mr. President and Gentlemen,—In the most interesting paper on "Endocarditis in the Pig," read by our highly esteemed colleague, Mr. Stephenson, at your last meeting, you will find the question:—"Were these pigs suffering from some unrecognised form of swine-fever?" From Denmark I know a little about the matter, and I shall try to give you the little I know. But to make sure this was really the same disease that I have seen here, I have induced my esteemed friend, Dr. Bang, Professor at the Royal Veterinary and Agricultural High School in Denmark,

to send two microscopical preparations, which I have handed to Dr. Murray, from whom you already have been informed that he considers them to be quite in conformity to the specimens belonging to the illness in question. But now a contra question. What is swine-fever? If it is only the infectious disease whose most prevalent symptoms are the work of destruction from diphtheria in the large intestines (cæcum and colon), the endocarditis has nothing to do with swine-fever. But there is another infectious disease in pigs—erysipelas anthrakitis, the Germans' Rothlauf, allow me to translate it red-disease, which has unfortunately been well-known in Denmark for more than twenty years, and the chronic form of which seems to be the endocarditis. The principal symptoms of the red-disease are: weakness, fever, constipation, discoloration of the skin; and *post-mortem*, black and thick blood, hyperæmia in the spleen and liver. If extending over several days you will find the glands, especially the Peyers' patches, swollen, and then it may be wrongly termed swine-fever. In Denmark it was first looked upon as anthrax, hence the erroneous name; after the discovery of the bacilli of anthrax this idea was naturally changed and it was considered a typhus, but now, only a few years ago, after further examinations, especially by Dr. Loeffler and Professor Schirtz, in Berlin, it has been recognised as a special infectious disease with its own bacillus, which may be seen on this design, where you will also find the bacillus of anthrax; and thus see the difference between these two, the former being by far the smaller. The bacilli have been cultivated and injected in mice, when a well-marked special disease has been produced, which has been transferred back to swine again; and the disease may now be classed among the best known diseases in the pig.

Since the year 1882 several diseased hearts from swine, described as endocarditis verrucosa, have been handed to the Veterinary Pathological Cabinet in Copenhagen. The red-disease up till then was only known in the province of Jutland, but in autumn 1887 we had the first outbreak of a new infectious swine-disease in Copenhagen and Zeeland, and this proved to be what you call swine-fever—diphtheria. It was a heavy attack, but following the system of total slaughtering of sound and diseased animals in infected places we succeeded in stamping it out, and since that we have had only a few outbreaks, of a more chronic form and less contagious—on the islands only. This outbreak resulted in a closer examination of the diseases in swine, the old and several new cases of endocarditis were examined; and in a lecture given in the Jutland Veterinary Society Dr. Bang gave his experience about the disease, and proved the bacilli found in the heart-illness to be the same as in the red-disease. Being cultivated in the usual manner they showed the same shape in culture as the germs from red-disease, and inoculated in mice produced the same form of disease. In Switzerland the same result was observed. Hess and Guillebeau tried to inoculate swine with red-disease as a

preventive remedy, and in some cases no outbreaks took place; but a few weeks later they found a full-developed growth in the endocardium in those inoculated pigs, especially in the young ones, and a few also had an attack in the hip-joint. Here, too, it was stated that the two diseases were of the same origin, and further that the endocarditis proved to be a chronic form and less contagious than the red-disease. Now you understand why I took so great an interest in the specimen shown to you. When I arrived here I was astonished to learn you had no red-disease, and I doubted very much whether it could be so. In the years 1881 to 1882 we had swine from Denmark slaughtered here in England as suffering from swine-fever, and our swine in the future had to be landed for slaughtering only. But at that date, as I told you, we had not seen the swine-fever in Denmark, and the only explanation seemed to be that the two diseases were identified in England. This suspicion was confirmed when I found in your 'Veterinary Report' of 1888, p. 14:—"Valvular diseases in heart extremely common in swine, and other non-infectious complaints are attended with symptoms which may be mistaken for swine-fever;" and p. 177:—"A suspicion naturally arises that more than one affection is classed under the head of swine-fever, and that in those districts where so many recoveries take place the outbreaks reported are not all genuine, but cases of less fatal diseases are accepted as swine-fever." And you will find similar expressions in the last report. Here I suggested the red-disease, and now, after having seen this endocarditis, I am quite sure that you will find the acute form of red-disease also. It is not considered so dangerous as the swine-fever, though we in Denmark have added measures against it to our Infectious Diseases Animals' Act of 1857.

Only a few words more. The Germans speak of a third contagious disease in swine where the principal symptoms are:—Pleuro-pneumonia with pericarditis, and where has been found an ovate bacterium very similar to that found in fowl-cholera; it is simply described as "Schweinesuche"—swine-disease. But I never saw it, and it was never found in Denmark. As to swine-fever the germs belonging to it are not more closely defined. Something has been said about two different bacilli appearing at the same time. In a recent issue, however, Dr. Bang, who has paid a great deal of attention to these matters since the outbreak of swine fever in Denmark, stated that in any case of local necrosis, mortification, or diphtheria, the thinner one of the two is always to be found, so too in diphtheria in calves, ulcerations in the feet of cattle, gangrenous grease in the horse, &c., and he succeeded in producing diphtheria in calves by a culture originally taken from the fetlock of a horse. He has termed the germs bacilli of necrosis, and, as you will see, there is still a wide field for discoveries in swine diseases.

Mr. Bowhill claimed that he had discovered the germ of swine-fever, and that after cultivation he had proved it to be identical with that he had seen while with Dr. Billings in America.

Professor Williams thought the growths were of rheumatic origin, owing, perhaps, to the exposure that pigs were subject to. He had seen similar growths in cattle and horses, and he did not think it had anything in common with swine fever, but appeared to him, if anything, more related to anthrax; the blood in the vessels becoming a black colour, whereas in swine-fever no such tendency on the part of the blood to change its character exists. He unhesitatingly affirmed there was no basis for coming to the conclusion it was swine-fever.

The *President* pointed out that from what Mr. Stephenson told him there was no evidence of contagion.

Mr. Moore then proposed, and *Mr. D. Dudgeon* seconded a hearty vote of thanks to Mr. Stephenson and Dr. Murray for the pains they had taken in elucidating this disease in swine, and which had been the means of affording this meeting such an excellent discussion. This vote was carried with acclamation.

Professor McCall's paper, "Are blisters hurtful or beneficial in acute diseases of the chest," followed.

The meeting was brought to a close and hearty votes of thanks were accorded Professor McCall and Professor Williams for their excellent addresses.

The Annual Dinner took place at the close of the afternoon meeting, and among the guests were The Mayor of Newcastle-on-Tyne (J. B. Ellis, Esq.) and Councillor J. A. Baty. Upwards of fifty sat down to an excellent dinner.

The usual toasts followed, and capital speeches and songs were given by the gentlemen present; in fact, the interest in one of the most successful gatherings of this Association was maintained until it was a question of catching trains by the country members.

W. Ashton Hancock, *Hon. Sec.*

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this Association was held at the Great Western Hotel, Birmingham, on Friday afternoon, February 13th, 1891. The President, Mr. F. W. Wragg, occupied the chair.

Present.—Professor Walley, Sir Henry Simpson; Messrs. — Barber, — Olver, — Barling, E. Beddard, T. E. Cartwright, H. D. Pritchard, J. Blakeway, R. Wilson, A. Gibson, — Franklin, H. M. Stanley, F. C. Tippey, — Butcher, W. Carless, J. R. Carless, H. Collett, H. J. Dawes, — Gold, F. L. Gooch, A. Green, T. Chambers, — Martin, T. H. Merrick, H. Olver, E. Paley, — Pemberton, — Pinkett, W. S. Carless, G. Rossell, Captain Russell, G. Smith, R. C. Trigger, — Warmington, G. Wartnaby, J. Wiggins, H. Barrett, E. G. Crowhurst, W. S. Weighill, F. Blakeway (Treasurer), and J. Malcolm (Hon. Sec.).

Visitors.—Dr. Garman, Wednesbury; Dr. Barling, Birmingham; Messrs. J. R. Green, Alfreton; — Bakewell; R. Hughes, Owestry; Gartside Mayor, Kirkham; — Scriven, Tadcaster.

The *President* (Mr. F. W. Wragg) entertained the members present to a sumptuous luncheon at the Great Western Hotel, afterwards the members removed to another room, and the meeting commenced.

The *Secretary* (Mr. John Malcolm) having read the minutes of the last meeting,

Professor Walley then asked permission to make a personal explanation. He said that at the last meeting Dr. Manley made some remarks in reference to his position in connection with the medical officers of health and the inspection of meat. Dr. Manley did not justly represent his position. He (the speaker) advocated the formation of a Sanitary Board, formed of the medical officer of health, the veterinary officer, and the senior inspector of markets and slaughter-houses. The Professor took occasion also to appeal on behalf of the committee on "Black Quarter," for the views of members of the profession who had had experience of the disease. He would be very pleased to give his own experience, which, ten or fifteen years' ago, was very large. (Hear).

The *President* said that Professor Walley's views, or those of any other member of the profession, would be very acceptable.

The *Secretary* read letters of apology from the following gentlemen:—Professors Pritchard, Penberthy, Williams, McFadyean, Axe, Dr. Fleming; Messrs. Kibble, Kenyon, J. M. Axe, Perrins, Tailby, Cartwright, Barling, Coe, Blakeway, Greaves, Hunting, Verney, and others.

Mr. J. R. Green, of Alfreton; Mr. J. Brett, of Nottingham; and Mr. J. C. Martin, Chesterfield, were nominated as new members.

On the motion of the *Secretary*, seconded by *Mr. Olver*, H. Barrett, of Nuneaton, was elected a member.

On the motion of the *Secretary*, seconded by the *President*, Mr. Crowhurst, of Leamington, was also elected.

Captain Russell moved the election of Dr. Manley as an honorary associate, and referred in congratulatory terms to the paper lately read by that gentleman. *Mr. Wiggins* seconded the proposition, and it was cordially agreed to.

The *President*, in accordance with what he termed an unwritten law, submitted the name of his successor in office, the name of a gentleman who, he said, had done a great deal for that Association as its Secretary—his friend Mr. Malcolm. (Applause.) Mr. Malcolm would carry out the duties of President in the earnest manner in which he had always acted in promotion of its interests.

The *Treasurer* (Mr. Blakeway) seconded the nomination, with pleasure, but with some reluctance. It would be very difficult to find a Secretary who would do the work so admirably and so successfully as Mr. Malcolm had done it. (Applause.) He did not know a man whom he would have greater confidence in

putting in any office (renewed applause), and his only regret was that they could not make him President without losing him from the Secretaryship.

Captain Russell.—Whom are we going to have as Secretary? (A laugh.)

The *Treasurer.*—I dare say Mr. Malcolm can introduce to us a good man.

The *President.*—I have no doubt of it.

The resolution was agreed to amid hearty applause, and *Mr. Malcolm,* in reply, thanked his friends for their kind words and the great honour they had conferred. It had been a great pleasure to him to do the secretarial work, for every member he had had the least connection with had seemed ready to assist him. The responsibilities of the presidency he fully appreciated. The Midland Society was either the oldest or one of the oldest veterinary societies in the Kingdom; it was one of the largest, and it was also one of the wealthiest. (Hear, hear.) Men who held the very highest positions in the profession had occupied the presidential chair; and his diffidence in consenting to follow them was only overcome by the knowledge that he would have the assistance of their past President, their Vice-presidents, and, he believed, of every member. (Applause.)

Mr. Dawes, of West Bromwich, was elected Secretary, on the nomination of *Mr. Malcolm,* seconded by *Mr. Trigger.*

The re-election of Mr. Blakeway, whom Mr. Trigger called "Our perpetual treasurer," was agreed to very heartily on *Mr. Trigger's* motion, seconded by *Mr. Carter,* and supported by *Mr. Wiggins.*

Mr. Trigger proposed, and *Mr. Barling* seconded, the election of Mr. Wartnaby as a Vice-president.

Mr. Beddard proposed, and *Mr. Dawes* seconded, Mr. John Blakeway.

Mr. Chambers submitted the name of Mr. George Smith, reminding the members that Mr. Smith had been a member of the Association for twelve or fourteen years, and one of the most regular attendants at its meetings. *Mr. Wiggins* seconded the motion.

Mr. John Blakeway withdrew, and Messrs. Wartnaby and Smith were elected.

Mr. Harry Olver moved the election of the retiring President as a candidate for Council. He said that Mr. Wragg retired as a member of Council this year, after filling that position with credit to himself and advantage to the profession. He was the treasurer of the College, and, as such, must be known to his co-councillors as an exceptionally good man. He was the Treasurer also of the National Veterinary Association, and he had many other things to recommend him.

The *Treasurer,* in seconding the resolution, said that, himself a member of Council for many years, he had known Mr. Wragg at the Council Chamber, and he could assure them that no more

independent man sat in that chamber. Mr. Wragg had always been actuated by a full determination to vote for those measures which he believed would be most consistent, and most advantageous, and he had pinned his judgment to no man.

Mr. Wiggins was proud to have the opportunity of voting for Mr. Wragg, who was a man particularly pre-eminent, and a man not ashamed of being found alone in a good cause. (Applause.)

Mr. Trigger also supported the motion, on the ground that Mr. Wragg was the most earnest, indefatigable worker on the Council, which could not afford to lose him.

Mr. John Blakeway.—Would Mr. Wragg give his opinion on the three burning questions of the day?

The *President*, before replying, asked the Secretary to read the following letters:

157, Fulham Road, London, S.W.,
February 11*th*, 1891.

DEAR MR. SECRETARY,—Attendance at a law court here will prevent me availing myself of the pleasure of hearing Professor Walley's paper, and taking part in your discussions.

I notice on the agenda a subject which I should much have liked to take part in—I refer to "Nomination of Candidates for Council." May I ask you to remind your members that this election may be a turning point in the progress of our profession, and that it should be approached with more than usual caution. I anticipate that the Midland Society may nominate as their President, Mr. Wragg, who is one of the candidates this year.* If I were present I should vote for him, but much as I respect him and value his friendship, I should refuse to do so unless he gave clear expression to his views on the most important professional topics. Whether I believe a candidate agrees with me or not, I intend in future to vote only for men who trust their profession sufficiently to let their views on important questions be clearly known. I think this matter of sufficient importance to ask you and your Society to resolve (no matter who your nominee may be) only to vote for him on his clearly stating his views.

Yours truly, WILLIAM HUNTING.

Southport,
February 10*th*, 1891.

Mr. John Malcolm,

MY DEAR SIR,—Your circular to hand, and if I am able shall be with you, but at present, and for the last five or six week, I am invalided, out of collar, and may not be able to get to the meeting; be that as it may, I wish you a good meeting and an interesting discussion.

At the Lancashire meeting last Friday, I ran up from here to attend, and I proposed Mr. W. Whittle as our candidate for Council, Mr. P. Taylor seconded, and it was carried unanimously.

* This was written under a misapprehension. The writer had been told that Mr. Wragg was willing to vote for two of the "three points."

I advised that our Association should work in conjunction with Midland and Yorkshire. His views will be forthcoming. I believe he is in favour of a new Charter, annul Clause IX, and no dual appointment. With every good wish. Yours as ever,

THOS. GREAVES.

The *President* said that not being a Midland Counties man, he felt very grateful to his friends for the great confidence they had reposed in him by proposing his name. He had been on the Council for ten years, and had always tried to vote for what he thought the best interests of the profession (hear, hear), fearless of anybody's *pro* or *con*. He thought he knew something about the profession, for he had belonged to it nearly thirty years ; but he was asked by a certain gentleman to give his views. He did not fear to express his opinions publicly. The 9th clause was adopted in 1876, and he rather thought that the opposition to that clause should have been urged then. He must own that the clause bore very hardly on members who had been in the profession previously to 1876. It bore very hardly on him, for he had been a member of the profession for over fifteen years, and he tried to think what he had done to the profession that he should not have been made what was called a "Foundation Fellow." However, he accepted what was done at the time, and he would be sorry to complain now. As regards the dual appointment question, there were a great many men now who were members of the Council and examiners, and the great question with him was whether those members of the Council who were examiners could be spared from the Council. Of course he was quite in favour of a new Charter. He thought there were a great many reforms required. But he would very much like to know what that Charter was going to be before he pledged himself to vote for every clause of it. As regarded the election of Vice-presidents by the profession, he did not suppose that anybody in that room knew that some years ago Professor Axe (?) moved that the President should only be elected after a certain number of years, and Vice-presidents in a certain way, while he (the speaker) moved as an amendment that three of the Vice-presidents should be elected from those men who had obtained a certain percentage of votes from the profession. He would still like to see a certain number of Vice-presidents elected by the profession.

The proposition was put and carried after a few words by Captain Russell.

Mr. George Smith.—I suppose it is impossible to run two candidates?

The *Secretary.*—It means defeat.

Mr. Smith.—We have another old member of this profession whom we must not forget, I mean Professor Pritchard.

The *President.*—I must say myself that you will not forget that Professor Pritchard is a Midland Counties man. You cannot have a better representative.

The *Secretary* explained that it would be a tactical mistake to adopt two candidates, but said that he would be extremely pleased if most of the members would use their individual rights to support Professor Pritchard.

The *President*.—I know well that he is in favour of the abolition of the 9th clause. (Laughter.)

The subject dropped, and the Treasurer read his annual report, which he considered highly satisfactory, the balance during the year being advanced from £156 2*s*. 6*d*. to £174 15*s*. 3*d*.

Mr. Olver proposed, *Mr. Barber* seconded, and the meeting adopted a resolution of condolence with the wife of the late Mr. Reynolds, of Daventry.

Professor Walley read a paper on "Penetrating Wounds in the Foot of the Horse."

The Professor considered his subject under two heads:

1. Penetrating wounds resulting from the accidental introduction of foreign bodies into the sensitive structures of the foot.

2. Penetrating wounds resulting from, or connected with, shoeing.

In reference to the first class of injuries, he pointed out that the bodies which most largely produced such wounds were packing nails, and that they were of more frequent occurrence in town than in country practice, and that the accident was most largely caused by animals placing the foot on the head of the nail and tilting the point upwards—the great weight of the body facilitating penetration; that such penetration took place most frequently in the commissure, about one to one and a half or two inches from the apex of the frog; that while, as a rule, only one nail was found in the foot, it occasionally happened that two or more were picked up, and were apt to be overlooked by the practitioner. Such accidents were largely encountered in groups of threes and fours. Some of the most serious wounds were those met with in the feet of horses engaged in the removal of timber from plantings in which the brushwood had been recently cut down, in hunters passing through plantations, or over recently laid hedgerows, and in agricultural horses by treading on harrow tines. The depth of penetration was regulated by the direction in which the object passed and the point of impact—the injury being frequently modified by the penetrating object doubling over, or by the height of the heels of the shoe and the toe-pieces. Such wounds were often rendered more serious by the penetrating object breaking short off in the tissues, and if the horn closes over it, it is apt to be overlooked on examination; the injuries were most frequently inflicted in the sensitive sole, the sensitive frog, the os pedis, the navicular bone, the tendon of the flexor pedis, and its bursa. Occasionally the os pedis was fractured more rarely, or the penetrating object passed through the bone and became clenched on its anterior surface. The indication of the penetration of foreign bodies were in some cases characteristic, in others ambiguous. In most instances lameness was observed im-

mediately on the receipt of the injury and the animal was found—in the case of the hind foot—with the fetlock flexed and the weight thrown on to the toe, or alternately elevating and extending the foot and then placing it on the ground carefully; that in most cases swelling and tenderness of the tissues at the back of the leg, with throbbing of the plantar arteries, was detected on examination. In seeking for evidence of the penetration of foreign bodies, every suspicious mark in the sole should be followed to its termination. In extracting such bodies it is sometimes necessary to chip off or remove portions of the os pedis with a chisel or gouge; in all cases the surrounding horn should be carefully thinned, and the mouth of the wound freely opened.

An antiseptic should in all cases be introduced into the utmost recesses of such wounds. Preference over mineral acids (usually employed) being given to carbolic acid, solution of corrosive sublimate or chloride of zinc, terebene and turpentine; the effects of such injuries should not be under-estimated, but rather the patient should be thrown off work for a few days, and the foot carefully fomented or poulticed. In all severe cases the animal should be put in slings, and damage to the uninjured limb avoided by putting a high-heeled boot on the foot and applying a bandage to the leg. Laxatives, sedatives, and anodynes should be administered to the patient when necessary.

In speaking of the results of such injuries, it was pointed out that they depended upon the structures injured and the constitutional condition of the patient; that the most serious results were caries of the os pedis, inflammation of the flexor-pedis tendon or its bursa, open navicular bursa, deep cavities followed by abscess, cellulitis, septicæmia, pyæmia, and tetanus. In the treatment of results the Professor advised that excessive granulation was best deal with surgically, *e.g.* by the knife, the scissors, or the actual cautery; such treatment being productive of much less suffering than was inflicted by potential cauteries. Whenever the separation of the frog or sole took place an exploratory goove should be cut from the point of entrance of the foreign body to the point of exit of the pus; in all cases where pain and lameness continued without any evidence of suppuration, injury to bone might be suspected; and such injury is frequently followed by corns and exfoliation. Fracture of the navicular bone was frequently followed by permanent lameness. Bursitis was indicated by formation of a puffy swelling in the hollow of the heel followed by the formation of abscess; that open navicular bursa was best treated by macerating the foot for several hours daily in a strong solution of corrosive sublimate and cuprum sulphate, with the application of blisters to the coronet; that whatever caries of the os pedis was evidenced, the destroyed portion of the bone should be removed without delay, and the resulting wound dressed with carbolic acid, and a blister applied to the coronet. Lameness remaining as a result of any of the complications mentioned was best combated by irritants applied to the coronet, *e.g.* by pyro-puncture, blisters, or setons; that the pro-

gress of cellulitis should be checked by the application of a blister at the seat of the uppermost limits of extension ; and that immediately evidence of suppuration was attainable the damaged part should be freely incised, and irrigated with antiseptic solutions. Blood-poisoning should be prevented or combated by the use of appropriate remedies.

In dealing with injuries resulting from shoeing, the essayist directed attention to the terms usually employed to designate the different forms of injury as pricks, and stabs or drawbacks—the term *prick* being applied when the nail is left in contact with the tissues into which it has been driven, and the term *stab* or *drawback* when the nail is withdrawn. The most important predisposing and actual causes of such injuries, it was pointed out, are abnormal conditions of the hoof itself, bad quality of nails, improperly fitted shoes, or inartistically fullered shoes or pointed nails, viciousness or restlessness on the part of the animal, and faults of the smith. The professor in this connection emphasized the fact that such injuries as those under consideration were of far less frequency, and the results of less importance at the present day than was the case a few years ago ; and he attributed this to the operation of several factors, *e. g.* the better education of the shoeing-smith, the introduction of a better and more uniform quality of nail, the greater care taken of the foot of the horse, and the more universal superintendence of the veterinary surgeon, and the results of such injuries were less serious than of old by virtue of the fact that the services of the veterinary surgeon are sought at the outset of the lameness.

In reference to the results of this class of injuries the essayist pointed out that they depended (*a*) upon the structures involved, and (*b*) on the extent of the injuries ; that in the case of the penetration of the sensitive laminæ, or sole, or between these structures and the bone, the results were more serious than when penetration took place between the sensitive and horny laminæ, or between the sensitive and horny sole ; as in the former case, the suppurative action extends to the coronary cushion—giving rise to necrosis of the lateral cartilage, to formation of sinuses (quittor), to ostitis, periostitis, arthritis, cellulitis, sphacelus, pyæmia, and septicæmia—or to the undermining of the whole of the sole ; while in the latter the resulting lesions were more superficial, and far more easily dealt with.

In the management of such injuries the importance of seeking for evidence of extension of suppuration when such was not well defined, by making vertical exploratory incisions through the wall, was particularly dwelt on, the essayist pointing out that he was personally quite satisfied when on making such incisions he found that the sensitive structures were normal in character and that blood was readily obtained, but that when they presented a parboiled appearance or were highly congested, he was suspicious of deep-seated mischief and continued his search ; he deprecated hoof-stripping, asserting that inasmuch as the same ends could be gained

by the use of the knife and the rasp with a minimum of suffering, and without incurring the same amount of injury to the sensitive structures, it was unnecessary and cruel. In these cases where evidence was forthcoming of pedal necrosis, the essayist contended that the exfoliating structure could be readily removed by the aid of a drawing knife, without having recourse to more heroic surgical measures. In the general treatment of such injuries attention was directed to the necessity of placing the foot in a state of rest, of removing pressure from the injured parts, and, at the same time, of protecting both the damaged structures and the sound bone from further injury by appropriate shoeing. As a preventive to injuries inflicted by picked-up nails, the Professor advocated the use of leather soles and pads; and as preventives to injuries in shoeing he advocated improvement in the education of the smith, not only in respect of his art, but in a knowledge of the anatomy and physiology of the foot—the more extended supervision of the veterinary surgeon, and the registration of competent men. While in connection with the protective aspect of the question, he pointed out the conditions under which the employer could be held responsible for the acts of his workmen, and urged upon his hearers the necessity of insuring, and joining the Defence Society.

Mr. George Smith said they must all be very grateful to Professor Walley for his excellent paper. Would he kindly explain whether he would apply blisters at the time the synovia was escaping? His own idea was that at this period the foot must be kept perfectly still, and a horse's foot would not be kept still while it was blistered.

Mr. H. Stanley was of opinion that in all cases of open joints the finest treatment in the world was to put on a patent shoe and to blister. (Hear, hear.) A horse would soon get his leg at rest if he was blistered properly. As to shoeing-smiths, however, he disagreed entirely with Professor Walley. When blacksmiths got a little knowledge, it proved very dangerous. They should as much as possible be kept in their proper place; otherwise after the first row he had with the surgeon who employed him, a blacksmith would go and set up in business and call himself a farrier.

Mr. Barber said he had found that in cases of synovitis due to a fracture in the bursa, a solution of bichloride of mercury with liquor plumbi—a most unchemical combination—acted splendidly. He liked to apply the cold pipe, too, instead of blistering. In open wounds he believed in blistering sharply.

Mr. Stanley interposed again to say that he would be pleased to see the patent shoe of which Professor Walley had spoken.

Captain Russell said that there had been a remarkable diminution in the number of injuries to the foot, either because blacksmiths were better acquainted with their work, or, as he believed, because nails were nowadays made of a proper consistency and were easily driven. At Grantham, where the injuries met with were mostly caused by pieces of tin, metal, and glass picked up, a rather simple but a very effectual treatment was practised. They immediately

removed the shoe, had the foot pared down as low as possible, and put the foot into a poultice. The dressing they used was that spoken of by his friend Mr. Barber, and was described in Gamgee's *Vade Mecum.* In open joints, as soon as they could reduce inflammatory action, they applied the oil of cloves with good results. They used a plate shoe, bound up at the toe so as to fit into the clip and screwed at the heel with two screws. It could be easily taken off for inspection of the wound.

Mr. Gooch described a simple treatment for injury to the sole in cattle. It consisted of binding the wound, giving a free escape to the pus, cauterising the wound with the pure nitrate of silver, and applying boracic acid in a common bag.

Mr. Barber thought there was no better treatment than butter of antimony. It caused the least pain, if the action of the animal was to be taken as an indication.

Professor Walley doubted this.

Mr. G. G. Mayor having narrated a curious case occurring within his experience, which was very difficult of diagnosis.

Sir Henry Simpson tendered his thanks to those present for their kindness in asking him to come to Birmingham. With regard to the Farriers Company's scheme for the registration of shoeing-smiths, he thought he should throw in his lot with Professor Walley, and he trusted that gentlemen in the veterinary profession would agree it was the right and proper thing. It would not do nowadays to say that any body of men must be kept in ignorance. (Hear hear.) The tendency of the age was entirely against that; and the shoeing-smith was an artizan, and a man who occupied a very important position in the animal economy. He thought that the farrier's scheme was one likely to work a great amount of good. He saw no harm whatever in a man who had got to deal with the foot knowing what it consisted of. He did not think that likely to make the man dabble in what did not concern him. In fact, if he was a registered shoeing-smith he would not be allowed to dabble, because his certificate might be taken from him if he went outside his own calling. Registration therefore was, in his opinion, likely to be beneficial alike to the shoeing-smith and the veterinary surgeon. It would tend to elevate the profession indirectly, because gentlemen who took an interest in shoeing, hunting men especially—who valued horses with a high action—would be likely to appreciate the veterinary surgeon who took the view that the education of shoeing-smiths was important. He thought that he could mention another cause of injuries to the foot. Within the last forty-eight hours he had been shown a shoe which could be put on without nails. It was an ordinary shoe with india rubber, with no strips, but with four iron clips, which were knocked up from outside, and which had a jagged edge inside, that would catch in the crust. One valuable horse was shod with them, and pawed one shoe off the next night. There was nothing in the invention, but the remarkable thing was the inventor had got two or three good testimonials. They would see, however, that if a horse got his shoe off in the night he was

likely to tread upon it in such a way as to suffer injury. As to animals in excessive pain, he need hardly remind them that sometimes their suffering was so exhausting as to cause death. He remembered talking this over with Mr. Cox, who told him that he had once had occasion to divide the nerve, and who said he thought it desirable in extreme cases to do so. As to the diminished frequency of pricks, he was disposed to think that the better manufacture of nails had much to do with it.

Mr. J. Blakeway was inclined to agree with Mr. Stanley as to the farriers. These men would be saying they knew as much about the foot as veterinary surgeons, and their certificates must therefore be granted under very strict regulations. As to discharge of synovia, very great benefit was obtained from pressure on the under surface. His old partner used to recommend a dressing of alum and oxide of mercury for open joints, put in and wedged up with strips.

Captain Russell said that unless there was very careful registration he feared that farriers would, in the immediate future, gain some ascendancy over veterinary surgeons (a laugh), though twenty or thirty years hence registration would prove to have been a beneficial thing. The upper classes were easily imposed upon. They were always talking about shoes, and for the most part they knew nothing about it. A gentleman would take his horse to the smith, and the smith would say, "Oh, I can put that right. I am a registered shoeing-smith, and I can sell you white oils and any dressing you may require." The gentleman would say, "I was going to send for Russell, or Wragg, or Sir Henry Simpson," but the smith would reply, "Oh, that doesn't matter, I know all about it, here's my certificate."

Professor Walley.—Who is going to teach them?

Captain Russel.—Well, we shall not get the credit for it.

Professor Walley.—You will if you teach them.

Mr. Trigger urged the advantage of always removing the horn in case of punctured wounds, and the necessity of ignoring all assurances to the effect the blacksmith had already had the shoe off. He thought the most painless cautery was the actual cautery. (Hear, hear.) He had had great difficulty in applying potential cauteries after the first few days; and having resorted to the actual cautery so that he could stand better, he had been surprised to see that the animal hardly seemed to feel it, but stood perfectly still. One reason why pricks were frequent was that the shoeing competitions at shows had taught blacksmiths not to pare and rasp the feet. He was not a bit afraid of the registration of shoeing-smiths. He welcomed it. The more they elevated other classes of society, the more they raised themselves. (Hear, hear.) When they were registered, smiths would not be one iota better able to sell white oils than they were now. The fact that already there were 700 applications for registration showed that the scheme would be a success, and veterinary surgeons would study their own interest if they were in the swim. He believed, too, that it would be a very

great safeguard against actions at law to have employed registered shoeing-smiths.

Mr. Olver said that in open bursa he found great success from carbolic acid and chalk made into a paste and pressed tightly home. As to the registration of farriers, he thought it a great misfortune that the veterinary profession had not been kept posted on the question. (Applause.) He did not think it mattered two pins to the profession whether farriers were registered or not, but he would like to know what entitled a man to be registered. Indiscriminate registration would be wrong.

The *Treasurer* said that all veterinary surgeons should be furnished with the information Mr. Olver had asked for. Many who were without it had seen their foremen furnished with it, and he thought it was the duty of the Registration Committee to write to the masters themselves.

The *President* explained that the Secretary of the Committee had been under the impression that no veterinary surgeons kept forges; but his error had been corrected.

Mr. Stanley.—I told my shoeing-smiths they could do what they liked, but the moment they sent in an application they must pop off. (Oh.)

The *President.*—I think you will find, gentlemen, that the matter has been put right.

Sir Henry Simpson said that he did not want to stand sponsor for the Farriers' Company, but they had the co-operation of the Royal Agricultural Society and the Royal College of Veterinary Surgeons. The intention of the Company was to publish a register every year and to circulate it everywhere, so that veterinary surgeons and other employers of shoeing-smiths should be enabled to assure themselves of these men's qualifications, and if not registered should decline to employ them. He was sure the Worshipful Master of the Farriers' Company would be extremely sorry when he heard, as he (Sir H. Simpson) would take care that he did, that anything had been done which any veterinary surgeon could construe into an act of discourtesy. Why the foremen should have been approached instead of the masters he really did not know.

The *President*, in summing up the debate, said that the worst cases of punctured feet that he had noticed were those in which the puncture was just by the junction of the sole and the frog, and about one to two inches from the point. As regarded the treatment during discharge of synovia, he quite agreed with the patent shoe, but what he called a patent shoe was an ordinary shoe with a piece of iron attached to each heel at a slight angle, and a bar at the bottom. Horses in most excruciating pain, after being supplied with it, began to find that it rested them, and so the circulation in the foot went on properly. His lotion for the discharge of synovia was a preparation of carbonate of lead and oxide of lead, and he would be pleased to give the exact prescription to anybody who would like to try the lotion. He had

tried all sorts of other things, but had never been so successful as with that lotion. Of course, as soon as he got the discharge stopped, he went on to blister, and repeated the blisters as often as he could, putting a good poultice round the coronet after two or three days to get the scurf off, and repeating the blister on the new surface. When horses suffered excruciating pain, he was very fond of giving them a good dose of chloral hydrate night and morning. When there were exuberant granulations he had used chromic oxide for some time past with good effect. If a horse was pricked, it was mostly the fault of firemen who made the shoe, and who put the holes in wrongly. The door-man used to take such shoes back to the fireman, but nowadays he seemed afraid to do so. (Hear, hear.) In conclusion, he said that a veterinary surgeon who knew anything about shoeing had never the time to give superintendence to the forge. He, himself, hated the sight of his forge, and was of opinion that all veterinary surgeons would be better without forges.

Professor Walley, in reply, said that Mr. Smith must remember that if the foot did need rest, blistering was the best method of securing it. He would insist upon the application of a blister, either to an open joint or to a persistent lameness without apparent cause. He failed to see why smiths should not be taught the anatomy of the foot, and, to some extent, its physiology. Unless a smith had some notion of what he was knocking his nails into, he could no more shoe a foot properly than an engine driver could do his work if he did not know something of the construction of an engine. A horse's foot was not a block of wood, into which you could knock your nails anywhere. He did not think they would make any more quacks by instructing these shoeing-smiths than they would by leaving them alone, and if they threw aside all connection with the shoeing-forge, they would produce more quacks than ever. Most of the quacks he had met had been master smiths. Registration would be the best possible check upon them, for any man who tried to use his position for an illegitimate purpose could be punished at once. As to cold water, it was his habit in carrying out the system of treatment he had advised in connection with navicular bursæ, to use cold water after the action of the blister had passed off, and after a few days of the hose to replace the blister. The effect was better than if a blister had been continuously applied. He agreed with the use of plate shoes and pressure. The claim to efficiency which had been advanced on behalf of oil of cloves was, probably, its antiseptic property, though to some extent, of course, it was coagulative. As to butter of antimony, he had seen it applied to sheep, and never without appearing to cause intense pain. He did not believe in the plugging of orifices and open joints as long as there was inflammation; it did a vast amount of harm then. A good plug when the inflammation and discharge was got rid of consisted of quicklime, which was quite aseptic. As to the use of bichloride of mercury and sulphate of copper, his plan was to macerate for a couple of hours

with a strong solution. He dissolved 2 oz. of each in a solution which just covered the hoof. This did not interfere with the blistering because it did not come in contact with the blister, the solution finding its way to the parts by capillary attraction. Bichloride of mercury with acetate of lead was a capital antiseptic.

A vote of thanks to Professor Walley was heartily adopted.

It was decided to hold the next meeting at Worcester.

The members afterwards dined together, and a very pleasant evening was spent.

ROYAL COLLEGE OF VETERINARY SURGEONS.

Second list of names of members removed from Register through non-compliance with Section 5, Sub-section 4, of the Veterinary Surgeons Act, 1881.

Arthur, David . . .	Australia.
Allen, David . . .	—
Armstrong, Fred. . .	Cockermouth, Cumberland.
Aitkin, Alex. Murray .	Australia.
Atkinson, John Todd. .	—
Bagster, Jonathan . .	London.
Baird, Alex. B. . . .	Rutherglen, Lanarkshire.
Bolton, Geo. Fredk. . .	Montreal, Canada.
Bradshaw, Samuel . .	Stratford-on-Avon.
Bretherton, John . .	America.
Beech, T. S. . . .	California.
Brock, Edward J. . .	Australia.
Barker, John . . .	Australia.
Barber, Robert H. . .	Australia.
Burrows, H. A. . . .	London.
Boreham, James H. . .	—
Borthwick, James . .	Australia.
Bott, J. E.	New Zealand.
Clark, William . . .	Australia.
Clark, John . . .	America.
Clemenson, John . .	—
Clements, Wm. . . .	Trinidad, W. Indies.
Colquhoun, Archd. . .	Bengal.
Constant, Arthur Edward .	Clapham Road, S.W.
Coster, Laurence Henry .	America.
Crundall, Edward . .	America.
Coleman, J. B. . . .	New York.
Clegg, P.	Kingston, Jamaica.
Darling, Thos. Bell . .	Australia.
Davies, Joseph . . .	London.
Durham, Samuel . .	Dunedin, N. Zealand.
Eaton, J. S. . . .	London.
Elliott, Thos. . . .	London.

Ferguson, Jas., M.D.	Cuba.
Fisher, Isaac	London.
Fox, Edward	London.
Frater, William	America.
Fenner, James	Australia.
Green, Philip B.	Bengal.
Gulleford, W. W.	Islington.
Griffiths, Thos. S.	Australia.
Haggard, Edward	America.
Halket, Alex.	—
Hingston, J. Compton	—
Hoey, James W.	—
Hill, Geo.	London.
Hood, Fredk.	New Deer, Aberdeenshire.
Hope, Geo. J.	London.
Howcutt, John	—
Hulme, Thos. D.	America.
Hutchings, Alex. J.	Australia.
Harris, W. N. A.	New York.
Hawes, Robt.	London.
Hay, Adam	Australia.
Hayden, P. W.	—
Heriott, A.	Falkirk, Stirlingshire.
Hill, Thos.	New Zealand.
Hutton, G. A.	Cape of Good Hope.
Horton, J. M.	Australia.
Holland, C.	India.
Horsburgh, James, jun.	New Zealand.
Jackson, Charles	Madras.
Keen, John	London.
Keyland, John	Calcutta.
Lauder, Charles	America.
Lee, James	London.
Lee, John	America.
Lord, Roland A.	U.S. America.
McDonald, James Grant	America.
McIntosh, William	—
Maclachlan, David	America.
Marriott, John	Guelph, Canada.
Martin, Timothy	London.
Minor, A. D.	Manchester.
Montray, Luke Drummond	U.S. America.
McIntosh, R.	Australia.
Muston, F. H.	—
Morton, G. H.	New Zealand.
Newton, Peter	America.
Naden, Greatrex	New Zealand.
Palmer, James	London.
Petley, John	America.
Power, Nicholas	Kildare, Waterford.

Potts, Robert . . .	Australia.
Quallett, James . . .	New York.
Revis, Leonard . . .	America.
Rishmer, H. K. . . .	London.
Robb, G. W. . . .	Glasgow.
Rugg, F. G. . . .	Chesham, Bucks.
Sawyer, J. A. . . .	London.
Sedgeley, G. . . .	Bengal.
Shaw, Thos. . . .	America.
Skitt, John . . .	London.
Smallbones, G. B. . .	Hungary.
Smith, Edward . . .	London.
Smith, Whitfield . .	America.
South, Geo., jun. . .	McLeod's Mews, S. Kensington.
Stewart, W. . . .	Glasgow.
Sunderland, Robt. . .	Midgley, near Halifax.
Thompson, James . .	Canada.
Thornton, John . . .	London.
Thornton, John Brace .	Edinburgh.
Tills, John. . . .	America.
Tunzelmann, von Nicholas .	Canada.
Turner, —. . . .	London.
Tyzack, William . .	London.
Vincent, Edwin . . .	Madras.
Vincent, John Philip . .	Melbourne, Australia.
Wagstaff, Thos. . . .	London.
Wagstaffe, W. J. . .	Warminster, Wilts.
Williams, Charles E. . .	Melbourne, Australia.
Wilson, Archibald A. .	Africa.
Whitney, John . . .	New Zealand.

NATIONAL VETERINARY ASSOCIATION.

We are requested to state that the annual meeting of the National Veterinary Association is to be held at Doncaster during July, and that any member wishing to have the opinion of the meeting upon any subject must give notice to the Provisional Secretary, Joseph Abson. They will take precedence in the order received.

OBITUARY.

We regret having to record the death of Mr. Jeffrey Dawtry, M.R.C.V.S., Chichester, who died suddenly on March 24th. Mr. Dawtry carried on an extensive and lucrative practice for many years. He was highly respected, and had held office as a member of the Town Council, &c. For some time his health had failed, and while standing in the yard attached to his place of business, he staggered and fell dead.

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BOOKS, ETC., RECEIVED.

U.S. Department of Agriculture—Special Report on Diseases of the Horse—Bureau of Animal Industry.

Colombus Medical Journal, February, 1891.

The Australasian Veterinary and Live Stock Journal, January, 1891.

Les Virus, par le Dr. S. Arloing.

The Journal of Comparative Medicine and Veterinary Archives, February, 1891.

The following foreign publications are to hand:—*Annales de Medecine Vétérinaire*, March, 1891; *Oesterreichische Monatsschrift für Thierheilkunde, und Revue für Thierheilkunde und Thierzucht*, March; *Archivio per le Scienze Mediche, La Clinica Veterinaria* (Milan); *Zeitschrift für Veterinärkunde mit besonderer Berücksichtigung der Hygiene*, Berlin, March, 1891; *Recueil de Médecine Vétérinaire*, December, 1890; *Zeitschrift für Fleish- und Milchhygiene*, October; *Verlag des Archivs für Animal, Nahrungsmittekunde* (Cologne, Rhine), *Bulletin et Mémoires de la Société Centrale*, and *Central-Zeitung für das Kochsche Heilverfahren* (Berlin), February 1.

Papers received: *Mark Lane Express, North British Agriculturist, Land and Water, The Field, Live Stock Journal, Bell's Weekly Messenger, Agricultural Gazette, Farmers' Gazette*, Dublin; *Isle of Wight Observer and Chronicle, The Isle of Wight County Press, Edinburgh Evening Dispatch, The Gazette*, Montreal; and *The Denver Times*, U. S., January 2nd.

It is particularly requested that in future the British and Foreign Exchange Journals be directed to the EDITORS of the *Veterinarian*, 22½, Bartholomew Close, London, E.C.

NOTICE TO CORRESPONDENTS.

No. 1 of the *Australasian Veterinary and Live Stock Journal* has not been received, but Nos. 2 and 3 are to hand, and we hope to give extracts from them in our next number.

Through pressure of matter we have been compelled to postpone several valuable articles.

To ensure the publication of Cases and Communications in the coming Number they should arrive by the 15th of the Month.

LETTERS, REPORTS OF CASES, ETC., MAY BE DIRECTED EITHER TO PROFESSOR SIMONDS, J.P., RYDE, ISLE OF WIGHT, OR TO THE "EDITORS," AT THE ROYAL VETERINARY COLLEGE, OR TO THE CARE OF ADLARD & SON, PRINTERS, 22½, BARTHOLOMEW CLOSE, LONDON, E.C.

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The Editors do not hold themselves responsible for the sentiments expressed by their contributors, nor can they undertake to return rejected papers.

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A Subscription of *twenty guineas* entitles the Subscriber to all the privileges of the Institution, as a general Veterinary Establishment and Hospital for Animals, for life; and an annual payment of *two guineas*, to the same privileges during the continuance of such Subscription.

A Subscriber is entitled to have admitted into the Hospital for medical and surgical treatment, an unlimited number of Horses or other animals, his own property, at a charge only for their keep. Also, without the payment of fees, to have the opinion of the Professors as to the treatment of any animal he may wish to retain in his own establishment.

A Subscriber has likewise the privilege of having five horses examined *as to soundness* in the course of a year, and to receive the opinion of the Professors thereon, either verbally or in writing, free of charge; and also any further number at a fee of ten shillings and sixpence for each *extra* horse, or to have ten horses examined on payment, in addition to his Annual Subscription, of two guineas, or such other sum as shall from time to time be fixed by the Governing Body or General Purposes Committee.

The Professors do not examine horses for soundness out of the Institution, nor do they visit patients, except on very special occasions, and then only with the object of their being removed into the Hospital for treatment.

Members of the Royal Agricultural Society of England are entitled to all the privileges of Subscribers to the Institution, as appertaining to the diseases of Domestic Animals other than the Horse or Dog.

The Hospital and general Practice of the College is conducted by Professors Axe and Penberthy.

The Hospital contains ample accommodation for upwards of 100 Horses, besides Cattle, Sheep, Dogs, and other animals. It is fitted up with large and airy Loose-boxes and Stalls; Hot, Cold, Douche, and Vapour Baths; Operating Rooms, Covered Exercising Ground, &c. Rooms are specially set apart as an Infirmary for Dogs.

ROYAL VETERINARY COLLEGE.

By the Royal Charter of Incorporation the GOVERNORS have power "to confer upon and grant to such of the Students of the said College, as they shall think fit, *Annual or other Exhibitions, Scholarships, Medals and other Prizes and Certificates of Distinction.*"

A SCHOLARSHIP of £25 per annum, tenable for two years, was awarded for the year ending June 30th, 1890; and an additional Scholarship of the same amount will be awarded in 1891. Beside the COLEMAN PRIZE MEDALS; CLASS MEDALS, PRIZES and CERTIFICATES are given in each division of the Students' studies.

In addition to these Prizes the Royal Agricultural Society awards a *Silver* and a *Bronze Medal* to the two Students who may pass the best examination in the Pathology of Cattle, Sheep, and Pigs, at the Diploma Examination of the Royal College of Veterinary Surgeons.

The College Entrance Fee is *Sixty Guineas;* The payment of which confers the right of attendance on *all* the Lectures and Collegiate Instructions. The fee may be paid in *three* instalments, viz., Twenty Guineas on *entry,* Twenty Guineas at the end of the *first period* of study, and Twenty Guineas at the *second period* of study—the first instalment must, with the Matriculation Examination Fee of One Guinea, as well as the Library and Reading Room Fee of One Guinea, be paid prior to this Examination.

A Pupil, previously to his admission, is required to produce a recognised Certificate of Educational Acquirements, which must include all the pass subjects of the Matriculation Examination, or otherwise he must pass an Examination in *Writing, Reading aloud, Dictation, English Grammar, English History or Geography, Arithmetic, and French, German, or Latin.* A Pupil may also elect to be examined in any of the following subjects, *not exceeding two:*—Euclid, Books one and two; Algebra to Quadratic Equations inclusive; Natural History (Botany, Geology, or Zoology); Physiology; Chemistry; Physics; and the Greek, German, or Italian Languages.

The Educational Year is divided into a Summer and Winter Session of three terms, and begins on Oct. 1st and ends the middle of May.

Lectures, Clinical and Pathological, Demonstrations, and General Instruction, are given on Diseases of the Horse and other Domesticated Animals, including Epizöotics, Parasites and Parasitic Affections; also on Bacteriology, Comparative Anatomy, Physiology, Histology, Chemistry (General and Practical), Materia Medica, Toxicology, Botany, Therapeutics, and Pharmacy; Hospital Practice, Obstetrics, Operative Surgery, The Principles and Practice of Shoeing, &c.

Besides these Lectures and Demonstrations, the facilities which exist in the Institution are such as to enable Pupils, by attention to their duties, to acquire a well-grounded practical knowledge of their profession, and thus, on obtaining their Diploma, to at once merit the confidence of the public. This will become fully apparent when it is remembered that, for several past years, upwards of 2000 animals have been annually prescribed for and treated as GRATUITOUS PATIENTS *by the Pupils under the Supervision of the Teachers.*

In addition to the practical knowledge thus to be obtained, the Pupils have the daily advantage of attending the Professors on their visits to the Patients in the Hospital, thereby becoming acquainted with the diagnosis and treatment of each individual case. Similar advantages are likewise enjoyed by them with reference to the Out-Patients. They also attend on the Professors in their Examinations of Horses for Soundness, the yearly average number of which exceeds 1000. It may be further added, as showing the advantage of the College for obtaining practical knowledge, that the number of animals admitted into the Hospital or treated as Out-Patients year by year exceeds 2000, or more than doubles those sent for examination as to soundness.

A Student, during his Academical Course, has to undergo *three* examinations by the Royal College of Veterinary Surgeons. To be eligible for the FIRST he is required to attend, *at least,* one Winter and one Summer Session; a second Winter and Summer Session before being eligible for the SECOND examination; and a third Winter and Summer Session before being examined for the Diploma of the College.

The Examinations are held in May and December.

EDUCATIONAL STAFF.

G. T. BROWN, C.B., Professor, Principal of the College and Lecturer on Contagious and Parasitic Diseases.
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J. MACQUEEN, F.R.C.V.S., Professor of Hygiene.
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